BRAHMA

Assembly Manual

Published 09-05

Part No. 02983272

Caterpillar Challenger MT465B Cab/4wd

Tractors equipped with additional options, special equipment, tractor manufacturer modifications, new tractor models, or Customer alterations may prevent this Mount Kit from being properly mounted to the tractor. Alamo Group is not responsible for modifications to the Mount Kit to accommodate these differences.

ALAMO INDUSTRIAL
1502 E. Walnut
Seguin, Texas 78155
210-379-1480

MEMBER OF THE ALAMO GROUP
ALWAYS ON THE CUTTING EDGE

TO THE OWNER/OPERATOR/DEALER

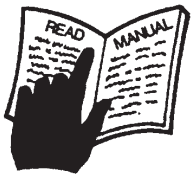
All implements with moving parts are potentially hazardous. There is no substitute for a cautious, safe-minded operator who recognizes the potential hazards and follows reasonable safety practices. The manufacturer has designed this implement to be used with all its safety equipment properly attached to minimize the chance of accidents.

BEFORE YOU START!! Read the safety messages on the implement and shown in your manual. Observe the rules of safety and common sense!

DANGER

FAILING TO FOLLOW SAFETY MESSAGES AND OPERATING INSTRUCTIONS CAN CAUSE SERIOUS BODILY INJURY OR EVEN DEATH TO OPERATOR AND OTHERS IN THE AREA.

1.



2. NO RIDERS. NO CHILDREN OPERATORS.

3. USE SAFETY SHOES, HARD HAT, SAFETY GLASSES, SEAT BELTS, ROPS & OPS

4. BLOCK UP SECURELY BEFORE WORKING UNDER.

1. Study and understand Operator's Manuals, Safety Decals, and Instructional Decals for tractor and implement to prevent misuse, abuse, and accidents. Practice before operating in a confined area or near passersby.
- Learn how to stop engine suddenly in an emergency. Be alert for passersby and especially children

2. Allow no children on or near folding mower or tractor. Allow no riders on tractor or implement. Falling off may cause serious injury or death from being run over by tractor or mower or contact with rotating blades.

3. Operate only with tractor having Roll-Over Protective Structure (ROPS) and with seat belt securely fastened to prevent injury and possible death from falling off or tractor overturn.
- Personal Protective Equipment such as Hard Hat, Safety Glasses, Safety Shoes, & Ear Plugs are recommended.

4. Block up or support raised machine and all lifted components securely before putting hands or feet under or working underneath any lifted component to prevent crushing injury or death from sudden dropping or inadvertent operation of controls. Make certain area is clear before lowering or folding

5. Before transporting, put Lift Lever in detent or full-lift position. Install Transport Safety Devices securely on folding mowers. Put Booms securely in Transport Rest.
- Folding and Boom Mowers have raised center of gravity. Slow down when turning and on hillsides.

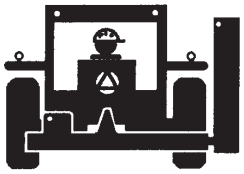
6. Make certain that SMV sign, warning lights, and reflectors are clearly visible. Follow local traffic codes.

7. Never operate with Cutting Head or Folding Section raised if passersby, bystanders, or traffic are in the area to reduce possibility of injury or death from objects thrown by Blades under Guards or mower structure.

8. Before dismounting, secure implement in transport position or lower to ground.
- Put tractor in park or set brake, disengage PTO, stop engine, remove key, and wait until noise of rotation has ceased to prevent crushing by entanglement in rotating parts which could cause injury or death.
- Never mount or dismount a moving vehicle. Crushing from runover may cause serious injury or death.

5. TRANSPORT SAFELY, LOCK UP.

6. USE SMV, LIGHTS, & REFLECTORS.



7. DO NOT OPERATE WITH CUTTER OR WING RAISED.

8. DO NOT MOUNT OR DISMOUNT WHILE MOVING.

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INTRODUCTION

ABOUT THIS MANUAL:

The intent of this publication to provide the competent technician with the information necessary to perform the CORRECT Assembly to the Alamo Industrial Product. This will, in turn provide for complete customer satisfaction

It is hoped that the information contained in this and other Manuals will provide enough detail to eliminate the need for contact of the Alamo Industrial Technical Service Dept. However, it should be understood that many instances may arrive where correspondence with the Manufacturer is necessary.

CONTACTING MANUFACTURER: (Please help us Help You! Before You Call!)

Alamo Industrial Service Staff Members are dedicated to helping you solve your problem, or your customer's service problem as quickly and efficiently as possible. Unfortunately, we receive entirely to many calls with only a minimum amount of information. In some cases, the correspondent has never gone out to look at the equipment and merely calls inquiring of the problems described to him by the operator or customer.

Most calls received by Alamo Industrial Service can be classified into approx. 6 general categories.

1. Hydraulic or Mechanical Trouble Shooting.
2. Request for Technical Information or Specifications.
3. Mounting or Fitting Problem.
4. Special Service Problem.
5. Equipment Application Problems.
6. Tractor Problem Inquiries.

HOW YOU CAN HELP:

Make sure the call is necessary! Most of the calls received may not be necessary if the Dealer Service Technician would do the following.

1. Check the Service Information at your Dealership provided by Alamo Industrial, This would include, Service Bulletins, Information Bulletins, Parts Manuals, Operators Manuals, Assembly Manual or Service Manual, many of these are available via the Alamo Industrial Internet site (www.Alamo-Industrial.Com). Attempt to diagnose or repair problem before calling.

2. If a call to Alamo Industrial is needed, Certain Information should be available and ready for the Alamo Industrial Service Staff. Such information as, Machine Model, Serial Number, Your Dealer Name, Your Account Number and Any other information that will be useful. This information is vital for the development of a prompt and correct solution to the problem. This will also help to develop a database of problems and related solutions, which will expedite a solution to future problems of a similar nature.

3. The technician may be asked to provide detailed information about the problem including the results of any required trouble shooting techniques. If the information is not available, The technician may be asked to get the information and call back. Most recommendations for repairs will be based on the procedures listed in the Service Manual / Trouble Shooting Guide and Information provided by customer.

CONTACT ALAMO INDUSTRIAL:

Alamo Industrial, 1502 E. Walnut St. Seguin TX. 78155, Technical Service Dept. PH: 830-379-1480

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INDEX - ASSEMBLY INSTRUCTION

NOTES

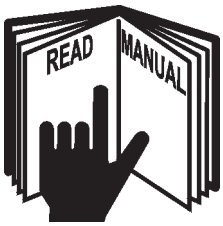
Section 1

A-BOOM

Caterpiller Challenger MT465B Cab / 4 WD Tractor

SAFETY SECTION

Read these assembly instructions through completely and understand them before proceeding with the assembly of the equipement.



A safe and careful operator is the best operator. Safety is of primary importance to the manufacturer and should be to the owner/operator. Most accidents can be avoided by being aware of your equipment, your surroundings, and observing certain precautions. The first section of this manual includes a list of Safety Messages that, if followed, will help protect the operator and bystanders from injury or death. Read and understand these Safety Messages before assembling, operating or servicing this Implement. This equipment should only be operated by those persons who have read the Manual, who are responsible and trained, and who know how to do so safely and responsibly.

The Safety Alert Symbol combined with a Signal Word, as seen below, is used throughout this manual and on decals which are attached to the equipment. The Safety Alert Symbol means: **"ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!"** The Symbol and Signal Word are intended to warn the owner/operator of impending hazards and the degree of possible injury faced when operating this equipment..

Practice all usual and customary safe working precautions and above all---remember safety is up to <u>YOU</u>. Only <u>YOU</u> can prevent serious injury or death from unsafe practices.

CAUTION! The lowest level of Safety Message; warns of possible injury. Decals located on the Equipment with this Signal Word are Black and Yellow.

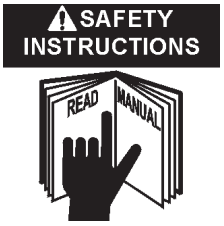
WARNING! Serious injury or possible death! Decals are Black and Orange.

DANGER! Imminent death/critical injury. Decals are Red and White. (SG-1)

PELIGRO! Si no lee Ingles, pida ayuda a alguien que si lo lea para que le traduzca las medidas de seguridad. (SG-3)

!LEA EL INSTRUCTIVO!

<u>READ, UNDERSTAND</u>, and <u>FOLLOW</u> the following Safety Messages. Serious injury or death may occur unless care is taken to follow the warnings and instructions stated in the Safety Messages. Always use good common sense to avoid hazards. (SG-2)



PELIGRO! Si no lee Ingles, pida ayuda a alguien que si lo lea para que le traduzca las medidas de seguridad. (SG-3)

¡ LEA EL INSTRUCTIVO!

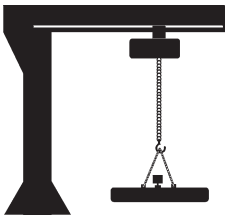
WARNING! Perform service, repairs and lubrication according to the maintenance section. Ensure the unit is properly lubricated as specified in the lubrication schedule and all bolts and nuts are properly torqued. Failure to properly service, repair and maintain this Implement in good operating condition could cause component failure and possible serious injury or even death. (SG-35)

WARNING! Operate this Equipment only with a Tractor equipped with an approved roll-over-protective system (ROPS). Always wear seat belts. Serious injury or even death could result from falling off the tractor--particularly during a turnover when the operator could be pinned under the ROPS. (SG-7)

DANGER! Never work under the Implement, the framework, or any lifted component unless the Implement is securely supported or blocked up to prevent sudden or inadvertent falling which could cause serious injury or even death. (SG-14)

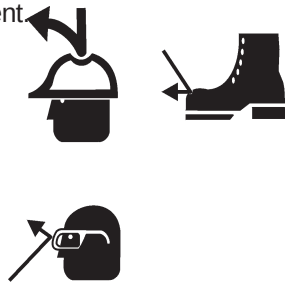
WARNING! Use caution and wear protective gloves when handling sharp objects such as blades, knives, and other cutting edges. Be alert to worn component surfaces which have sharp edges. Sharp surfaces can inflict severe laceration injuries if proper hand protection is not worn. (SG-37)

WARNING! Many of the parts are heavy and require lifting assistance. Do not try to lift the heavy parts by yourself. Get help from another employee or from an overhead crane.

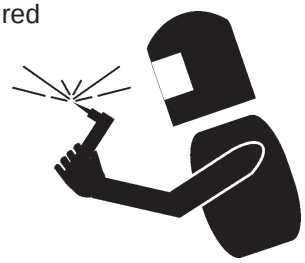


WARNING! The operator and all support personnel should wear hard hats, safety shoes, safety glasses, and proper hearing protection at all times for protection from injury including injury from items thrown by the equipment. (SG-16)

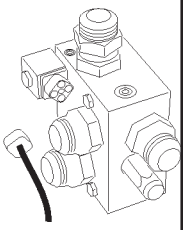
WARNING! Always wear safety shoes with steel toes when working on this equipment. It is recommended that the safety shoes have metatarsal guards.



WARNING! When welding use Welding hood with the appropriate OSHA required protective lens, welding apron, and welding gloves.



DANGER! Always disconnect the wire leads from the mower valve solenoid before performing service on the Tractor or Mower. Use caution when working on the Tractor or Mower. Tractor engine must be stopped before working on Mower or Tractor. The Mower Blades could inadvertently be turned on without warning and cause immediate dismemberment, injury or death. (SBM-12)



DANGER! Never run the tractor engine in a closed building or without adequate ventilation. The exhaust fumes can be hazardous to your health.

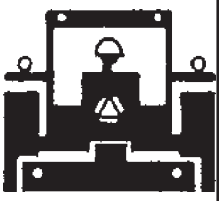
(SG-23)

DANGER!

Before starting the mower make sure the area is clear and the floor has been swept. The mower blade can throw objects several hundred feet. Thrown objects could damge property or cause severe bodily injuries even death.

WARNING!

Make certain that the “Slow Moving Vehicle” (SMV) sign is installed in such a way as to be clearly visible and legible. When transporting the Equipment use the Tractor flashing warning lights and follow all local traffic regulations. (SG-6)



DANGER!

Start tractor only when properly seated in the Tractor seat. Starting a tractor in gear can result in injury or death. Read the Tractor operators manual for proper starting instructions. (SG-13)

DANGER!

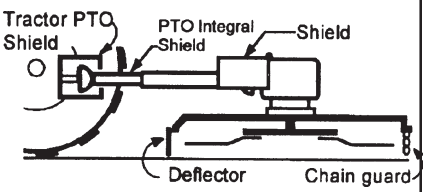
Do not operate this Equipment with hydraulic oil leaking. Oil is expensive and its presence could present a hazard. Do not check for leaks with your hand! Use a piece of heavy paper or cardboard. High-pressure oil streams from breaks in the line could penetrate the skin and cause tissue damage including gangrene. If oil does penetrate the skin, have the injury treated immediately by a physician knowledge-able and skilled in this procedure. (SG-15)

WARNING!

Always read carefully and comply fully with the manufacturers instruc-tions when handling oil, solvents, cleansers, and any other chemical agent. (SG-22)

DANGER!

All Safety Shields, Guards and Safety devices including (but not limited to) - the Deflectors, Chain Guards, Steel Guards, Gearbox Shields, PTO integral shields , and Retractable Door Shields should be used and main-tained in good working condition. All safety devices should be inspected carefully at least daily for missing or broken components. Missing, broken, or worn items must be replaced at once to reduce the possibility of injury or death from thrown objects, entanglement, or blade contact. (SGM-3)



DANGER! **NEVER use drugs or alcohol** immediately before or while operating the Tractor and Implement. Drugs and alcohol will affect an operator's alertness and coordination and therefore affect the operator's ability to operate the equipment safely. Before operating the Tractor or Implement, an operator on prescription or over-the-counter medication must consult a medical professional regarding any side effects of the medication that would hinder their ability to operate the Equipment safely. **NEVER** knowingly allow anyone to operate this equipment when their alertness or coordination is impaired. Serious injury or death to the operator or others could result if the operator is under the influence of drugs or alcohol. (SG-27)

DANGER! Operate the Tractor and/or Implement controls only while properly seated in the Tractor seat with the seat belt securely fastened around you. Inadvertent movement of the Tractor or Implement may cause serious injury or death. (SG-29)

WARNING! **Engine Exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to the state of California to cause cancer and birth defects or other reproductive harm. (SG-30)**

WARNING! **Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the state of California to cause cancer and birth defects or other reproductive harm. Wash Hands after handling. (SG-31)**

WARNING! Use extreme caution when getting onto the Implement to perform repairs, maintenance and when removing accumulated material. Only stand on solid flat surfaces to ensure good footing. Use a ladder or raised stand to access high spots which cannot be reached from gound level. Slipping and falling can cause serious injury or death. (SG-33)

WARNING! Avoid contact with hot surfaces including hydraulic oil tanks, pumps, motors, valves and hose connections. Relieve hydraulic pressure before performing maintenance or repairs. Use gloves and eye protection when servicing hot components. Contact with a hot surface or fluid can cause serious injury from burns or scalding. (SG-34)

WARNING! Avoid contact with hot surfaces of the engine or muffler. Use gloves and eye protection when servicing hot components. Contact with a hot surface or fluid can cause serious injury from burns or scalding. (SG-38)

Section 2

BRAHMA

Caterpiller Challenger MT465B

Cab / 4 WD Tractor

PRE-DELIVERY INSPECTION CHECKLIST

BRAHMA PRE-DELIVERY INSPECTION CHECKLIST

Pre-Operation Inspection: Check the following items before operating the unit to assure that they are properly assembled.

Saftey Equipment:

----- Operators Manual is with Unit.
----- The Safety Decals are installed as listed in the Assembly Manual.
----- Valve operation plate is installed.
----- Operators cage or Tractor Cab is in place. (Item 1 page 1-4)
----- Deflectors are installed on the Mower Head. (Item 2 page 1-4)
----- Tractor Rops or Cab with seatbels installed properly.

Frame:

----- Front Support Bolts are torqued.
----- Hydraulic Tank mounting Pins / Bolts in place correctly.
----- All Welds inspected toinsure proper welds and locations.

Hydraulic System:

----- Oil Level in Hydraulic Tank is within the sight gauge.
----- Hose connections are tight.
----- Hoses do not have any kinks or twist in them.
----- Front Pump Shaft adapter bolts are tight.
----- Front Pump Shaft Coupler / Drive Shaft is lubricated and has an anti-seize compound on the Splines of Pump and Shafts.
----- The Pump Drive Shaft has correct alignment.
----- Suction Hose has no leaks or kinks.

Rotary Mower Head:

----- Skid Shoe Bolts are torqued to 120 ft. lbs.
----- Spindle Housing Bolts are torqued to 400 ft. lbs.
----- The Spindle Housing is properly lubricated.
----- Motor Bolts are torqued to 120 ft. lbs.
----- Blade Carrier (Bar) Bolts torque to 400 ft. lbs.
----- Blade Bolts are torqued and the retainings Pins are in place.
----- Blades Swing freely.

BRAHMA PRE-DELIVERY INSPECTION CHECKLIST

Pre-Operation Inspection: Check the following items before operating the unit to assure that they are properly assembled. (See following page 1-4 for component location)

Flail Mower Head:

___ Skid Shoe Bolts are torqued to 120 ft-lbs
___ Motor Bolts are torqued to 120 ft-lbs
___ Belt Alignment& tension adjustment is correct
___ Cutter shaft bearings are properly lubricated
___ Roller bearings are properly lubricated
___ Blades swing freely

Tractor Mower Operation Inspection:

Using all Safety precautions, operate the Tractor and Mower unit for 30 minutes and while the unit is running check the following items: **Note!** Only make adjustments after the mower has been turned off and all motion has stopped and all hydraulic pressure has been relieved.

___ Check for Hydraulic oil leaks at the hose connections
___ Operate the mower head throughout its full range of motion and check for hose's rubbing, pinching, or kinking.
___ Make sure the Return Filter Gauge is reading in the Green after Oil is warm.
___ Check the function of the Mower Head On-Off Valve and switch for proper function
___ Make sure that the tractor will not start with the mower on-off switch in the on position.
___ Check the Blade Rotation for the Rotary Mower Head to make sure it is turning Clockwise looking from the top of the mower deck and facing forward.
___ Make sure the control valve boom movements agree with the valve operation decal.
___ Make Sure Boom Movement operates as expected and is smooth and under control (no air in the control system)
___ Look for any unusual or excessive noise or vibrations.

Post-Operation Inspection:

___ Check that the oil in the hydraulic tank has not turned milky in color or has foam on top.
___ Check that there are no loose fasteners or hardware.

NOTES

Section 3

BRAHMA

Caterpiller Challenger MT465B Cab / 4 WD Tractor

General Information

GENERAL INFORMATION:

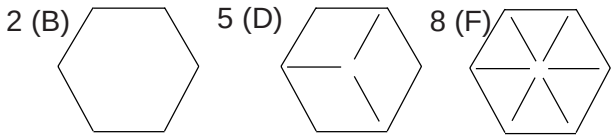
The tools you will need at the assembly site are as follows:

1. Impact wrench or socket and ratchet set.
2. Rubber mallet.
3. Box-end, Allen, and adjustable wrenches.
4. Alignment pins.
5. Forklift or hydraulic floor jacks with rolling back boards.
6. Small chain hoist or block-and-tackle.
7. Multidirectional Levels.
8. Hydraulic Filter Buggy or Cart.
9. Safety shoes, safety glasses, and gloves.
   A hard hat should be worn by anyone working under any raised component.

Remember to follow each step closely and cautiously. Be aware of all support personnel at all times. Keep the assembly area as clean as possible; clean up all spills when they occur. An uncluttered assembly area and a crew that is sensitive to the hazards involved in putting this implement together will help prevent accidents. Keep all unauthorized personnel from the area. Do not allow children near the assembly site nor allow them on or near the tractor after assembly. There is no safe place for anyone except the operator on the tractor and those assisting with the assembly.

RECOMMENDED TORQUE VALUES CHART:

RECOMMENDED TORQUE IN FT.-LBS. (Nm)
COARSE AND FINE THREADS



Bolt Dia.	Plain Head	Three Dashes	Six Dashes
1/4"	Not used	10 (14)	14 (19)
5/16"	Not used	20 (27)	30 (41)
3/8"	Not used	35 (47)	50 (68)
7/16"	35 (47)	55 (75)	80 (108)
1/2"	55 (75)	85 (115)	120 (163)
9/16"	75 (102)	130 (176)	175 (237)
5/8"	105 (142)	170 (230)	240 (325)
3/4"	185 (251)	300 (407)	425 (576)
7/8"	160 (217)	445 (603)	685 (929)
1"	250 (339)	670 (908)	1030 (1396)
1-1/8"	330 (447)	910 (1234)	1460 (1979)
1-1/4"	480 (651)	1250 (1695)	2060 (2793)

To help you assemble your new Brahma and mount it to your tractor, we provide you with drawings, instructions, and general information. When needed, you can get information or clarification from Your Dealer or Alamo Group Customer Service.

This publication provides general information not specifically for your case or tractor, but, in connection with the drawings and Parts Section, this publication offers you some valuable assistance - please read it thoroughly.

The mount kits are made for selected tractors with standard configurations. Only the noted options and tire sizes listed in the model specifications will work with these mount kits. Other options, front axles, or different tire sizes may prevent the mount kit from fitting your nonstandard tractor. Alamo Group cannot take responsibility for these problems or any modifications made to the unit.

Throughout these instructions, In the Parts Mnaual, Operators Manual and decals on unit you will see the following symbles, pay close attenion to them. References are made to right or left directions. Right and left are determined by sitting on the tractor seat and facing the direction of travel.

This is the Safety-Alert symbol. When you see this symbol on your machine or in these instructions, be alert to the potential for personal injury. Follow recommended precautions and safe operating practices.

DANGER!

A signal word - **DANGER**, **WARNING**, or **CAUTION** - is used with the Safety Alert symbol. **DANGER** identifies the most serious hazards.

WARNING!

Safety signs with signal word **WARNING** are typically used to point out more serious hazards.

CAUTION!

General precautions are listed on **CAUTION** safety sign. **CAUTION** also calls attention to safety messages in these instructions.

NOTES

Section 4

BRAHMA

Caterpiller Challenger MT465B Cab / 4 WD Tractor

Frame Mounting

Mounting Main Frame Asy. To Tractor

MOUNTING RH FRAME WELDMENT:

1. The RH Frame weldment will bolt to the rear axle and the front right hand side of the front of the tractor. use bolts, flatwashers & lockwashers furnished (See Figure 1) in bolt bag. Secure Tractor so that it cannot be started unless you want it started. DO NOT Mount any Brackets or components until instructed to do so. There are some components that will interfere with mounting others if mounted to soon. The RH frame and LH frame support must be mounted under the tank rails as they are retained with the same bolts. The front 4 bolts of frame rail should be left loose until the frail rails are installed later. Back from the front 4 bolts there are two bolts that can be snugged for now, remember these must be tighten later.

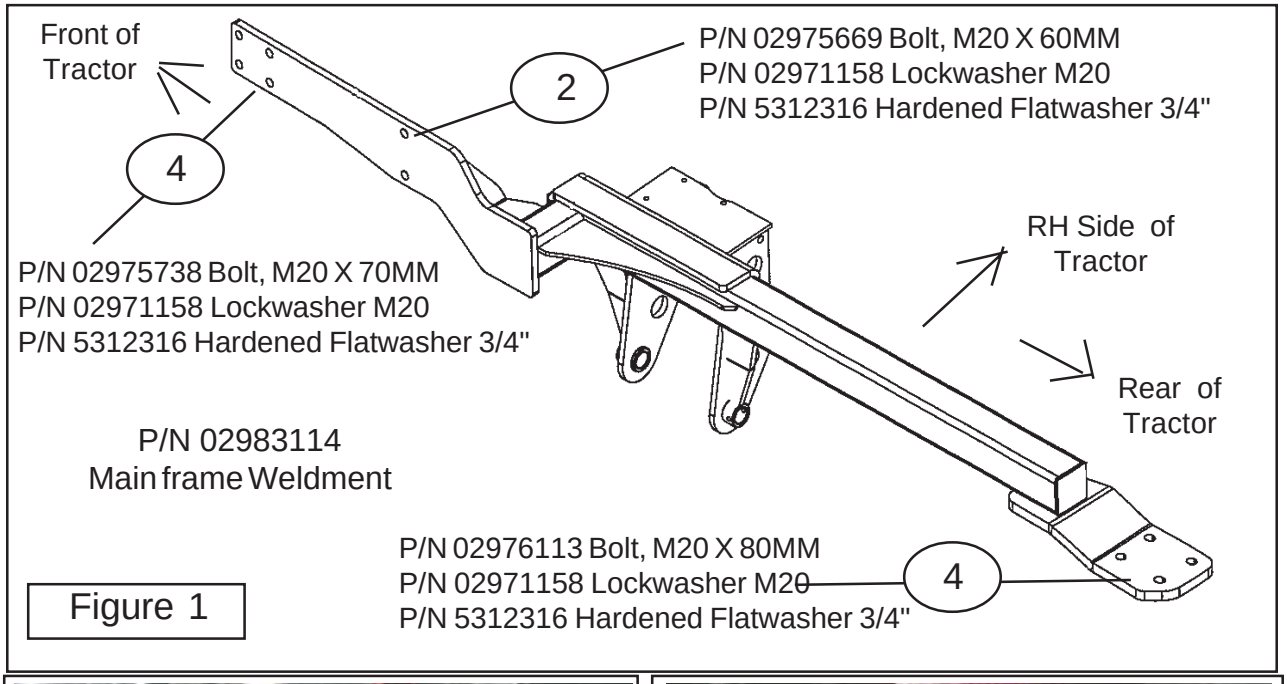


Figure 1

Figure 2

Figure 3

2. The rear of the frame weldment will bolt up under the RH rear axle. The stabilizer bracket for the RH side will need to be taken loose (See Figure 2) and reinstalled over the frame weldment (See Figure 3). The frame weldment will need to be supported while the bolts are being installed, this can be done with floor jacks or by using an overhead hoist. When lifting the frame weldsment use caution not to damage the cab or other components of the tractor. Do not tighten any of the mounting bolts for the frame weldment until all the bolts have been install. When tightening the frame weldment do not use the bolts to force the frame up, it should go up straight.

Mounting Main Frame Asy. To Tractor

3. The LH Frame Support will bolt to the LH side of the tractor with the angle end pointing inward toward RH side (See Figure 4, 5 & 8). Use 4 bolts (P/N 02975738) 4 Lockwashers (P/N 02971158) and 4 Hardened Flatwashers (P/N 5312316). The LH Tank Rail will bolt on with these same bolts front 4 bolts, these bolts should be left loose until tank rails are installed. There are 2 bolts (P/N 02975669) 2 Flatwashers (P/N 5312316) and 2 Lockwashers (P/N 02971158) that will be used in the LH frame rail that can be installed and snugged (See Figure 5).

PINS AND TEFLON BEARINGS:

1. Teflon Bearings and Pins should last a reasonable time on Brahma, but only if properly installed.

2. Before assembling any points that have teflon bearings, check for any damage to the bearings, or any burrs on the pins. Replace the bearing if there is any damage to it, and remove any burrs on the pins.

3. DO NOT USE EXCESSIVE FORCE - Pins should slide into the bearing with just hand force. If they do not check each bearing and thru hole to make certain that the pin will go into them. It they do, realign and try again. Teflon bearings are not to be Force Fitted. The Holes for the pins are align bored, DO NOT use force to spread any components as you will misaligned the holes.

4. If the Teflon sheathing is pushed out by a pin, the bearing must be replaced immediately.

5. **DO NOT USE ANY KIND OF LUBRICANT** - If problems continue, do not use any kind of lubricant to aid the installation of the pin (it will only attract dirt, becoming liquid sandpaper, and definitely destroy the bearing) Contact your dealer, or Alamo Industrial Technical Services.

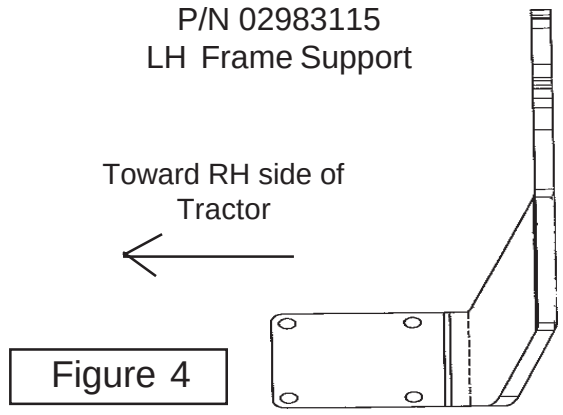


Figure 4

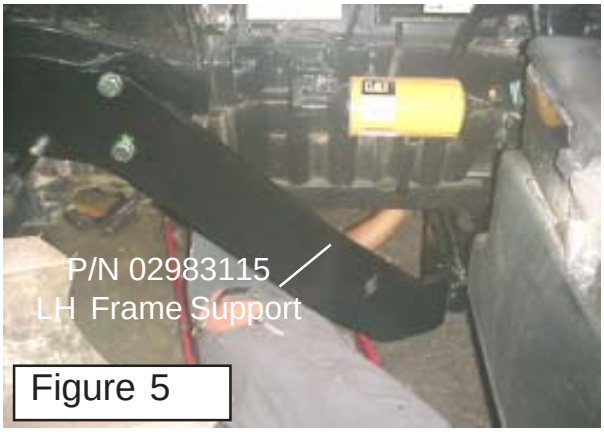


Figure 5

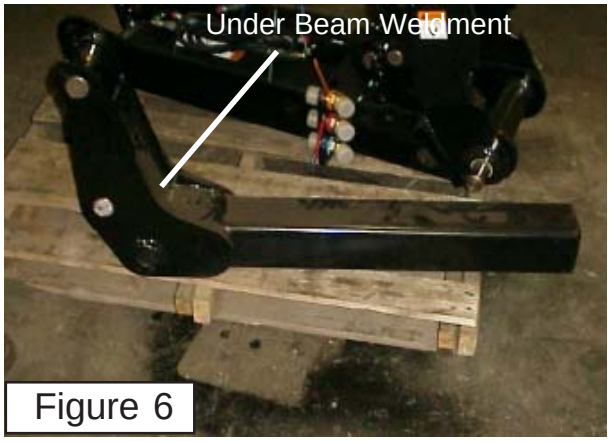


Figure 6

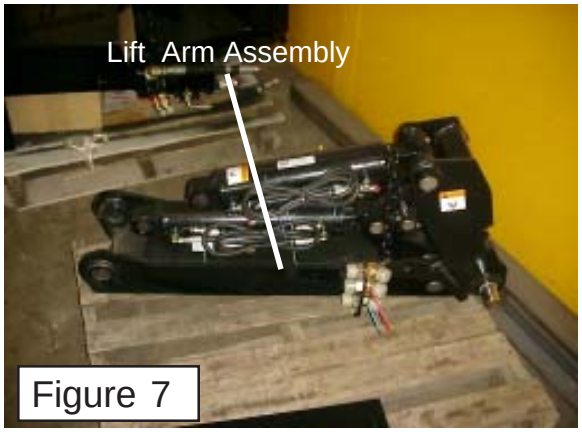


Figure 7

Mounting Main Frame Asy. To Tractor

6. Assembled Components. The Under Beam and the Lift Assembly will be shipped assembled. The pins and bolts will have to be removed in order to mount them together and to the tractor, use caution not to damage pin bearings.

MOUNTING ARM & UNDER BEAM INSTALLATION:

1. The Under Bear & Lift arm can be assembled off the tractor and then installed as an assembly to the tractor, or they can be installed as components one piece at a time. If installing under beam and Lift Arm assembled it is best that you use an overhead hoist and an assistant to help control the components movement. The LH Under beam Support Mount WILL be assembled to the tractor be fore the under beam is installed. The Clamp plate to mount the under beam to the LH Under beam Support Mount will be installed after the arm, bracket and under beam asy are installed (See Figure 8).

2. Locate Components. Locate Lift Arm Assembly (See Figure 7). Locate the underbeam weldment (See Figure 6 & 8). These component can be assembled together then mounted on to the tractor. These are heavy components you will need an overhead hoist to lift them into position.

3. Align components. The same pin will connect all three components. It works well to have the Mounting Arm Assembly up off the floor a few inches (See Figure 8). Align the under beam up with the lift arm, using a hoist lower the under beam down and into the frame rail. **Caution: read the section on the previous page about the bearings for these pin, this is important that these bearings are not damaged.**

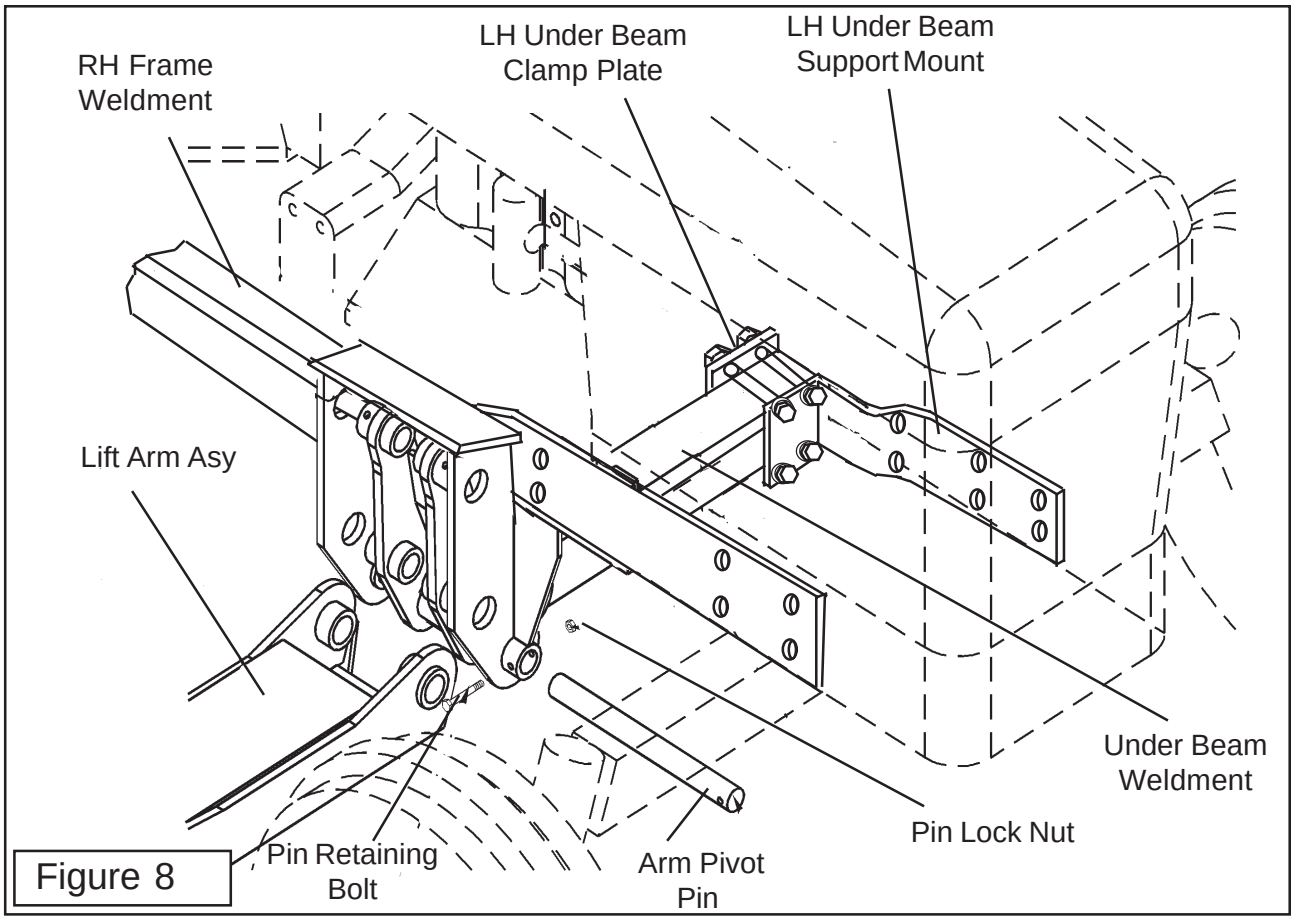


Figure 8

NOTE: Shown in Figure 8 as disassembled as reference only, these components can be connected to tractor as an assembly, it is the person mounting the unit to decide which method works best for them.

Section 5

MACHETE

Caterpiller Challenger MT465B Cab / 4 WD Tractor

Front Pump, Driveshaft & Hydraulic Tank Installation

Pump / Driveshaft Assembly Instructions

Installing Pump, Pump Drive Components and Hydraulic Tank:

This Section covers the installation of Pump Drive Components, Pump Assembly and the Hydraulic Tank. Some precautions must be followed during the Assembly Process and before unit is ever started for the first time.

1. Tractor must be disabled to prevent accidental engine start and prevent damage to components.
2. All Fittings, Hose, Cylinders, Tank must be kept plugged at all times, No part of the Hydraulic System can be left open at any time during mounting process, this will keep system clean.
3. All Tools, Work Area, Components and Workers Hands must remain Clean when working on any part of the Hydraulic System.
4. All components should be rechecked for tightness at least twice, Hose routing also double checked.

Prepare Tractor Front Plate (Bolster) to Slide Driveline in F/ Engine Side:

1. Preparing Tractor, On the Left and Right side of Tractor the hood sides will need to be removed, also if there are engine protective shields they will have to be removed to install pulley adapter and driveshaft half. The shaft half of driveline will have to be slid down and through the bolster from the engine side of radiator. The driveshaft has to slide in from the engine side because the hole (holes) in bolster may be to small for driveline flange yoke to slide through. There is a plate that is bolted to the front of tractor that will have to be removed. Check hoses for the Oil Cooler and/or Air Conditioning condenser, these hoses need to be tied up in such away that they will not rub on driveshaft after it has been installed.

Installing Pump Drive Components:

1. With Front Bolster cover removed Remove any plastic plugs that are located in the threaded holes in the front and discard them, they will not be needed. The Casting should already have a hole in it for the driveshaft to slide through.

Installing Crankshaft Pulley Adapter:

1. Install Pulley Adapter. The Pulley adapter (P/N 02979238) is a round plate with 4 threaded holes and four non-threaded holes in it. Notice this pulley adapter will not have a center hole in it **(See Figure 1).** The four non-threaded holes are used to mount the Adapter to the Crankshaft Pulley using 4 bolts and 4 lockwashers that are supplied in mount kit. The four threaded holes are used to install the flange yoke of driveline to pulley adapter Do not use longer bolts to mount Pulley Adapter to Pulley or Flange yoke to adapter than are supplied with mounting kit, if longer bolts are used they could go through adapter and pulley causing damage. Tighten the four bolts that retain the pulley adapter to the pulley now, it will be easier than trying to tighten them later.

2. Install Shaft Half of Driveline with Flange Yoke. Note the driveline universal joints should be timed **(See Figure 2)**. Slide the two driveline half assemblies apart and lay the tube half aside for now. Make certain that the four retaining bolts for the Pulley adapter to the crankshaft pulley have been tightened.

From the side of the tractor (LH or RH side) slide the Shaft Half of driveline shaft end first down into the opening below the radiator from engine side, insert it through the existing hole until the shaft is pointed toward the front of the tractor, and the flange yoke is over far enough to align with the four threaded pulley adapter holes. Special Note. Some technicians do not connect driveshaft to crank shaft pulley at this time, they leave the driveshaft pushed up under radiator. This allows them to be able to start and move tractor if needed without damaging the pump due to no oil. If you do this use extreme caution that driveshaft is out of way of crankshaft pulley and will not move and hit them.

Align the four holes in the flange yoke of driveline with the four threaded holes in the pulley adapter. Install the four retaining bolts and lockwasher into flange yoke into adapter, tighten them at this time. These four bolts can be tightened by using a long socket extension run through along side the driveline shaft.

Set the tube end of driveshaft aside for now as it will be installed later. But always remember the driveline universal joint must be aligned (timed) when assembling the driveline halves.

Pump / Driveshaft Assembly Instructions

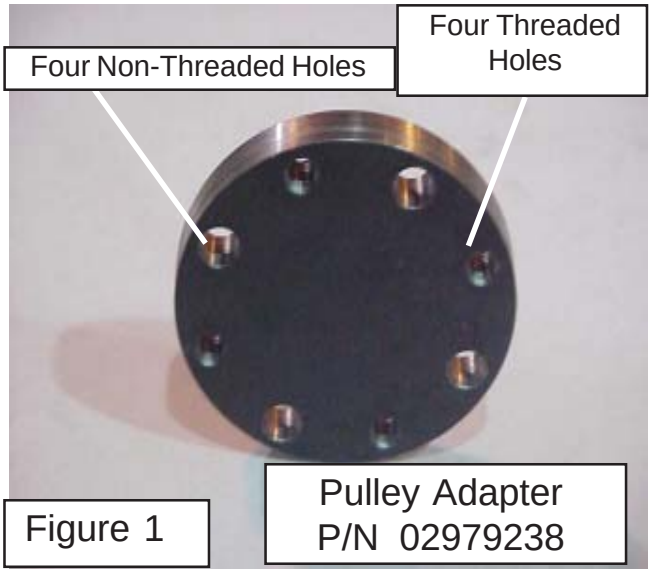


Figure 1

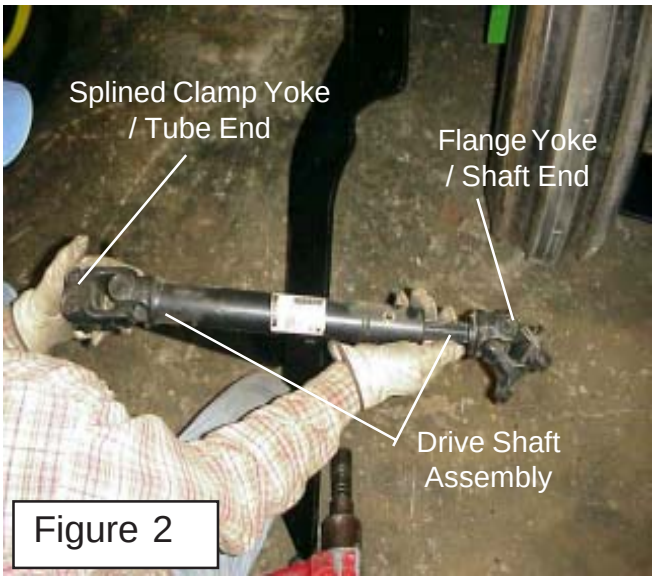


Figure 2

Installing Pump Mounting Weldment :

1. Install Pump Mounting Weldment. The Pump Mount Weldment (P/N 02977074) bolts to the front of the tractor, there are four spacers that are used (P/N 02982085) used to space pump mount plated (See Figure 3) .

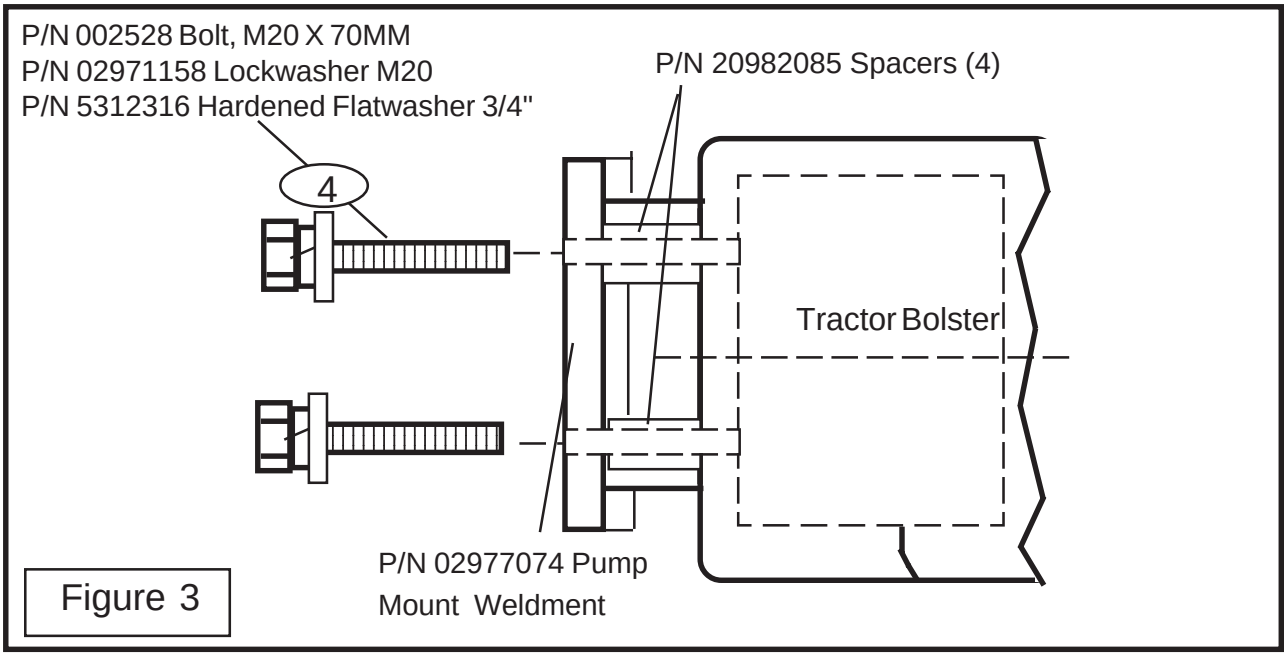


Figure 3

Installing Driveline Half to Pump :

1. Install Driveline Half to Pump. Coat the Splined Pump Shaft with anti-sieze compound before installing driveline. Grease the driveshafts universal joints before assembly. Install the clamp yoke of the tube half of driveline onto the pump, slide the clamp yoke on pump shaft until you have about 1/8" to 1/4" gap between yoke and pump. Do not install yoke so far on pump shaft that yoke will rub against pump in anyway. Tighten the two bolts and nuts on clamp yoke at this time. (See Figure 4)

Pump / Driveshaft Assembly Instructions

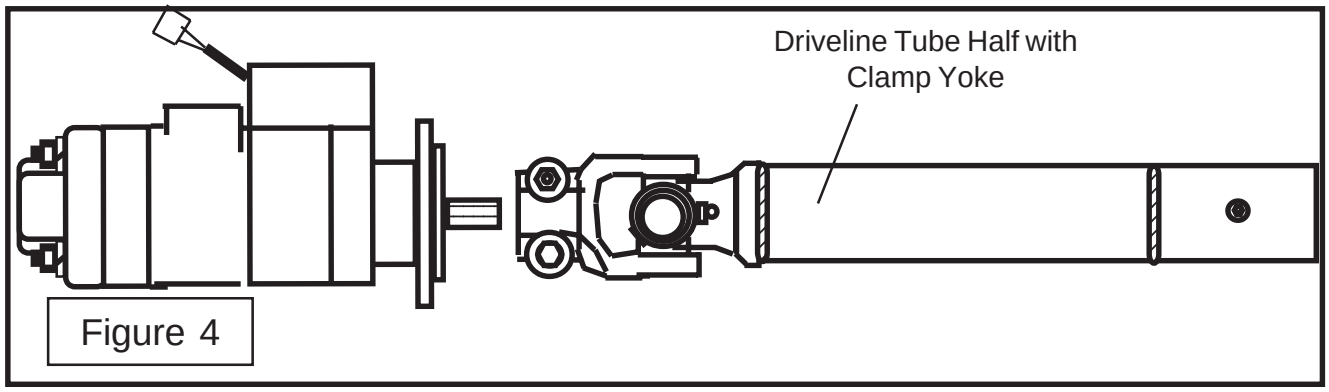


Figure 4

Installing Pump to Pump Mount Weldment :

1. Install Pump to Pump Mount Weldment. The Pump has the tube half of driveline attached and clamp yoke tightened. To install the pump and driveline half it is best to use an assistant or overhead hoist to help you align the drivelines halves as they are slid together, the Driveline **must** be timed (universal joints aligned the same) as shown in the pump & driveline schematic on (See Figure 4 thru 12). Slide Driveline half and pump together until the shoulder on the pump slide in the hole on the pump mount weldment. The Driveshaft halves will have to slide together while the two halves must align to keep the universal jionts in time.

When installing the pump always keep ports sealed to keep them clean and free of contamination. The pump MUST be turned correctly. This can be done by making certain that the pressure filter that is mounted on top of the pump is up.

Install the two 1/2" X 1-1/2" long pump mount bolts (P/N 02892000) and two 1/2" lockwashers (P/N 00001300). Tighten the two pump mounting bolts.

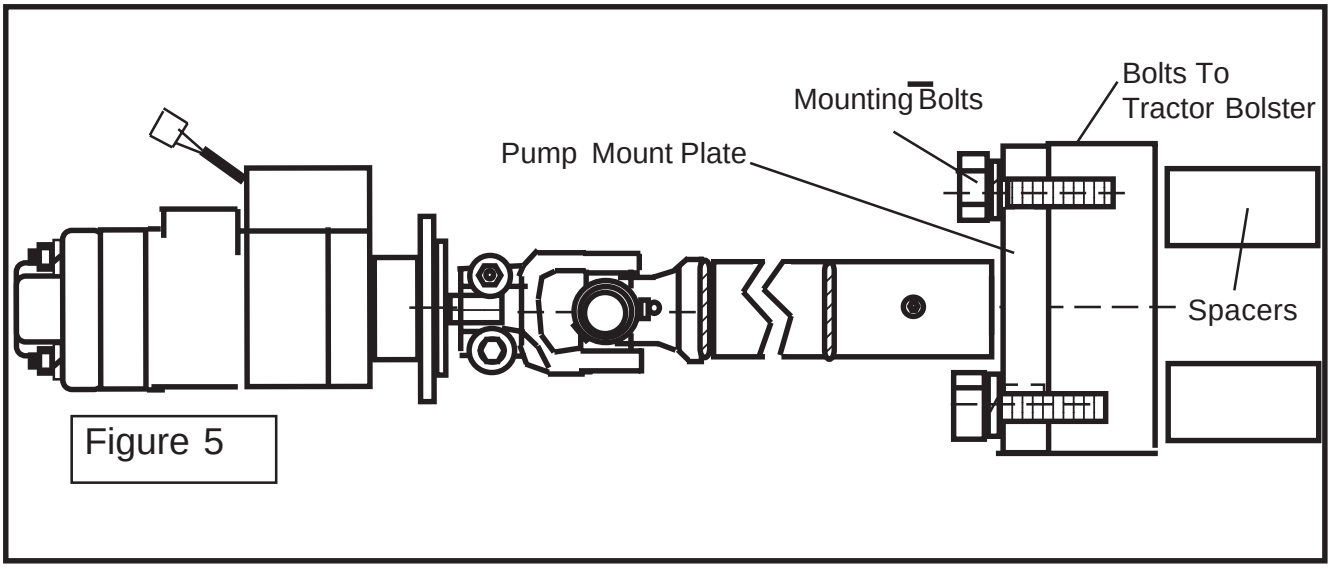


Figure 5

Pump / Driveshaft Assembly Instructions

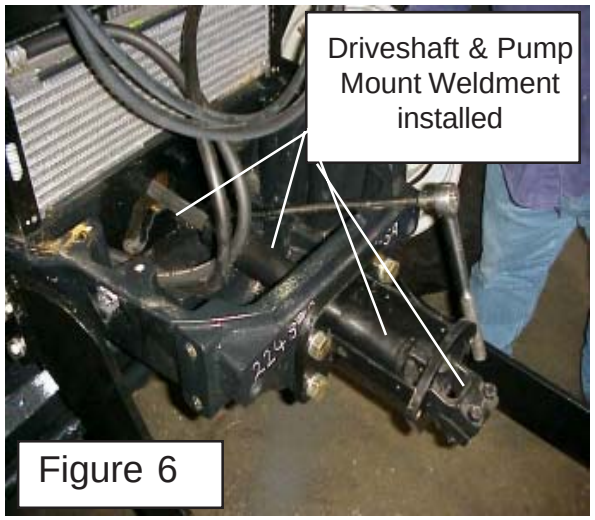


Figure 6

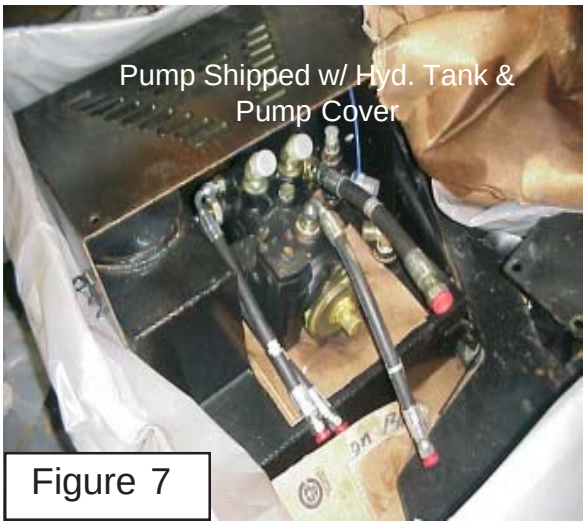


Figure 7

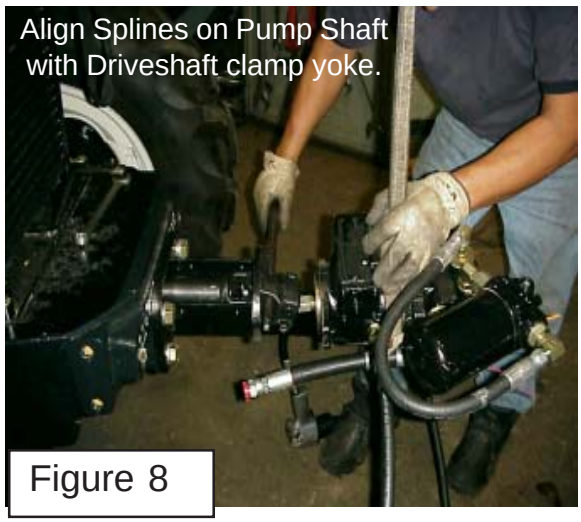


Figure 8

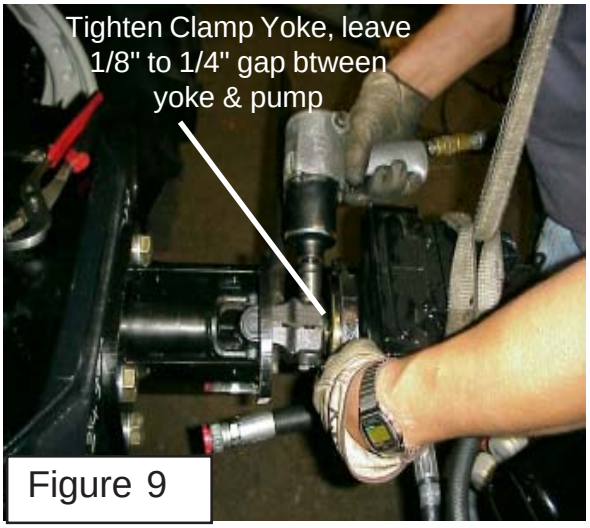


Figure 9

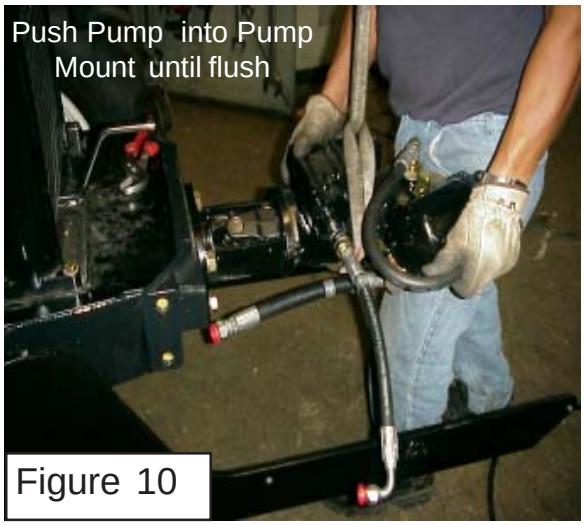


Figure 10

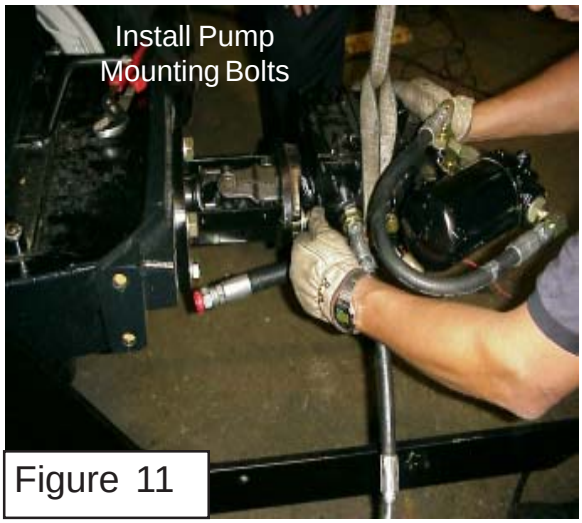


Figure 11

Pump & Driveshaft Components

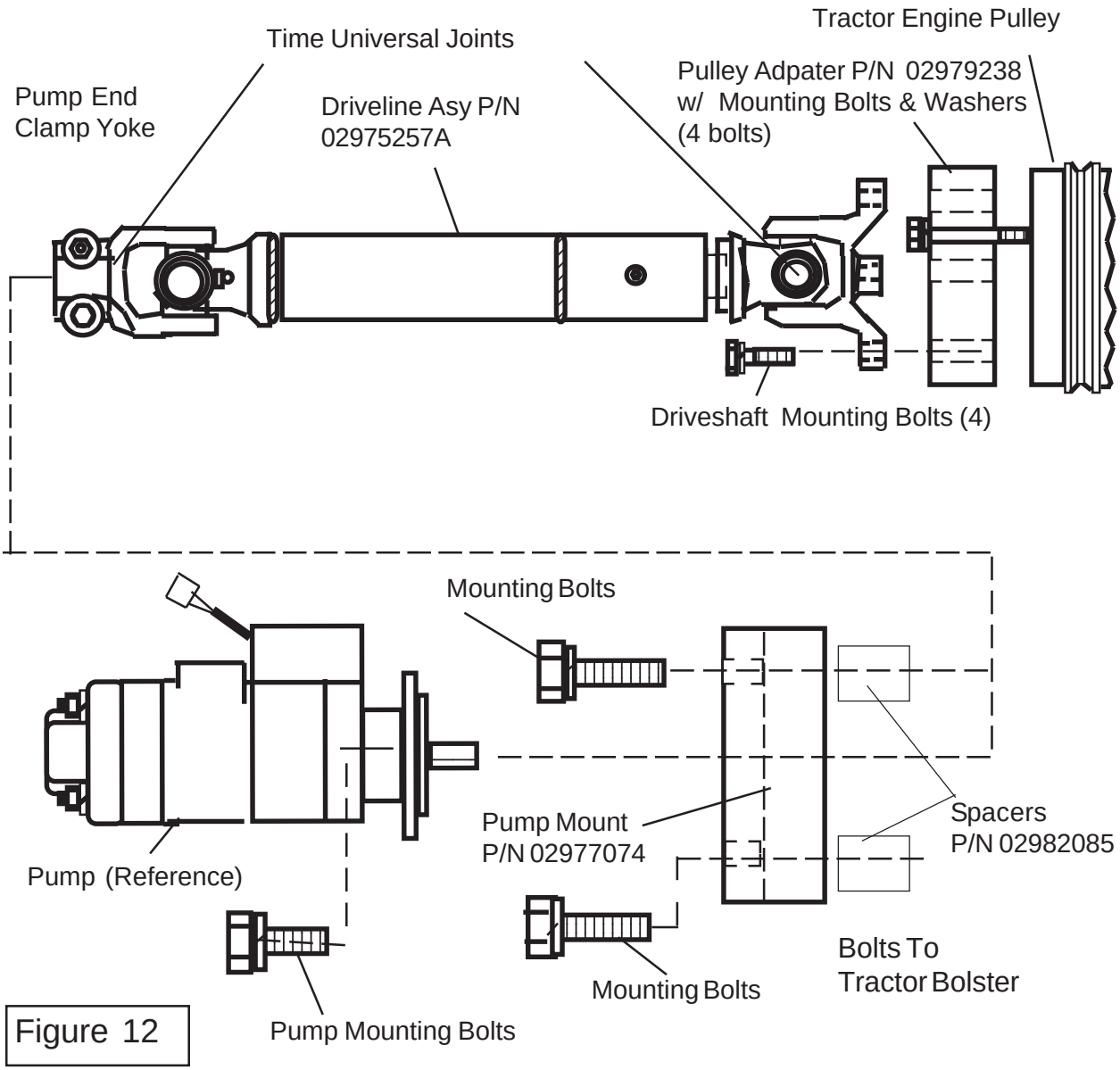
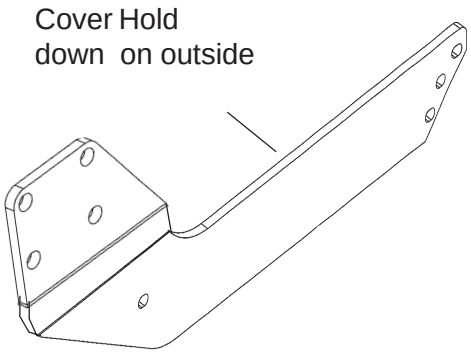


Figure 12

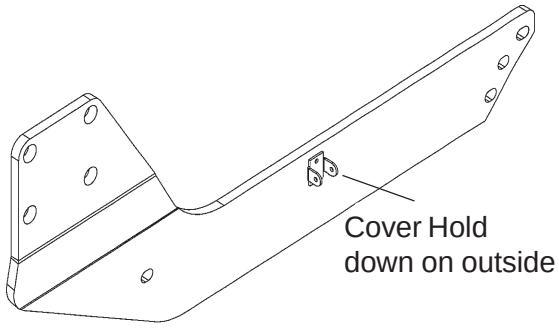
Install Tank Rail Weldments:

1. Install Tank Rail Welments. P/N 02983116 LH and P/N 02983118 RH. These will bolt on using the holes to the front of the tractor bolster on each side.. This will need to be done so the hydraulic tank can be mounted (See Figure 13 & 14).

Do Not tighten the bolts at this time, leave them a bit loose it will help in instaling hydraulic tank and bumper weldment later. NOTE: There is a left hand and a right hand weldment, the best way to determine which is LH and RH is the welded on mount for the rubber hold down. These rubber hold downs will always be to the outside (See Figure 13)



P/N 02983116



P/N 02983118

Figure 13

Installing Hydraulic Tank:

Special Note, the photos in this section may not be of the same type tractor as you are mounting, but the procedure will be the same. These photos are illusrtration only and not for model identification.

1. Hydraulic Tank. The Hydraulic tank is sent with the Tank Filler cap attached to it and the return Filter Assembly mounted on it. The Openings (For Hoses) are plugged and should remain Plugged untill Hoses are connected. Never leave a Hose or Fitting unplugged during Assembly **(See Figure 16 & 17).**

2. Tank Mounting Brackets & Bumper. Inspect the Tank Mounting Brackets. Notice the Bends in the Brackets, they should be bent to where they are wider at the Bumper end than at the Tractor Frame Rail Mounting End. The tank rails are installed using the RH frmae rail and LH support frames front 4 bolts. Remove the front 4 bolts of frame rail and install the tank rails over the frame. these four bolts can be tighten now. Test fit Bumper, this will make sure that the Tank Mounting Brackets are correct and the Bumper will fit Ok. Remove Bumper as the Hydraulic Tank cannot be installed with the Bumper installed **(See Figure 28).**

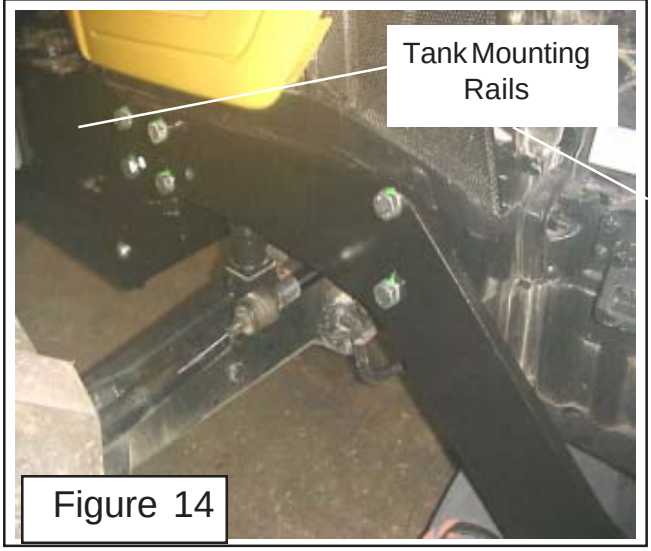


Figure 14

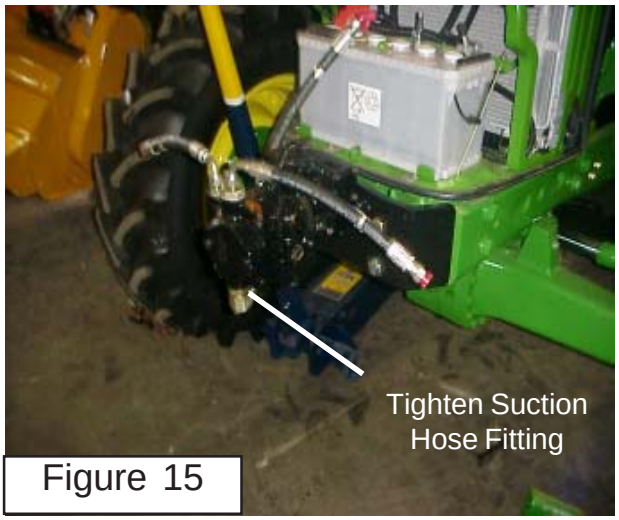


Figure 15

Installing Hydraulic Tank: (continued)

3. Hydraulic Tank Installation. Using a hoist to lift the Hydraulic Tank into position **(See Figure 19),** The Hydraulic Tank will slide in under Pump. Align the rear two mounting holes of Hydraulic Tank with the holes in the Tank Mounting Brackets **(See Figure 20).** These are the two closest to the tractor, Snug these two bolts at this time do not tighten them, as tank will have to move to align front Bolts. Note, the front Bolts that mount tank also mount Bumper. Leave the Tank supported by the Hoist.

4. Mounting Bumper. When installing the front bumper, Tank mount Brackets and the Bumper must all line up together as they share the same bolts. Start with one side or the other, in Figures below we started with the LH side **(See Figure 21 & 22).** There are three bolts on each side (total 6 for both sides). Insert the Bolts, Washers and Nuts, but do not tighten untill all 6 are installed. Tighten the 2 rear mounting bolts and the 6 front mounting bolts **(See Figure 20).**

5. Tightening Tank. Makes sure all the Mounting Bolts for the Tank and Bumper are tightened. Make sure that all Fittings and Hoses are plugged to prevent contamination from getting into system.

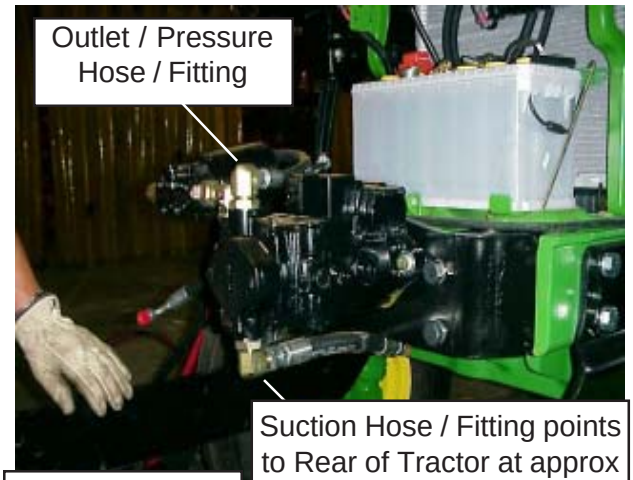


Figure 16

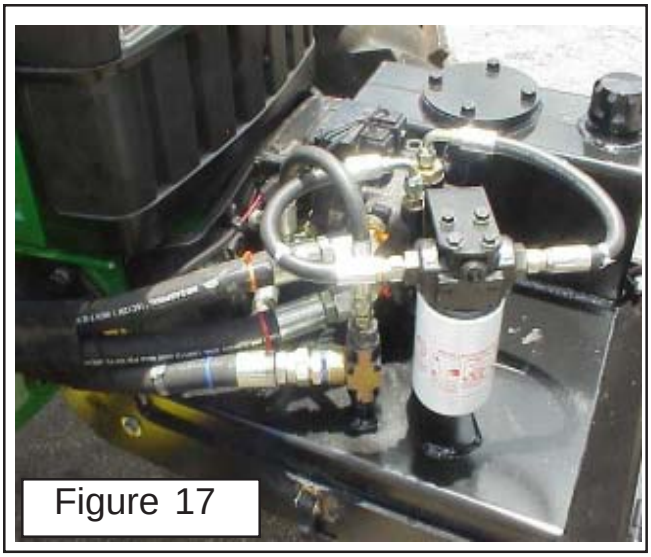


Figure 17

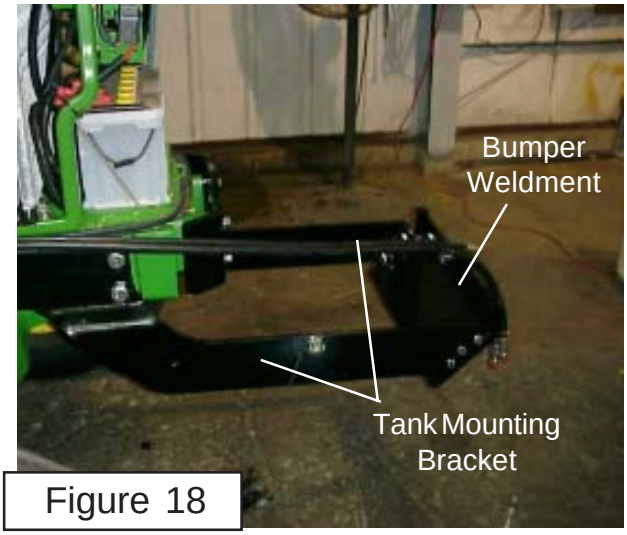


Figure 18

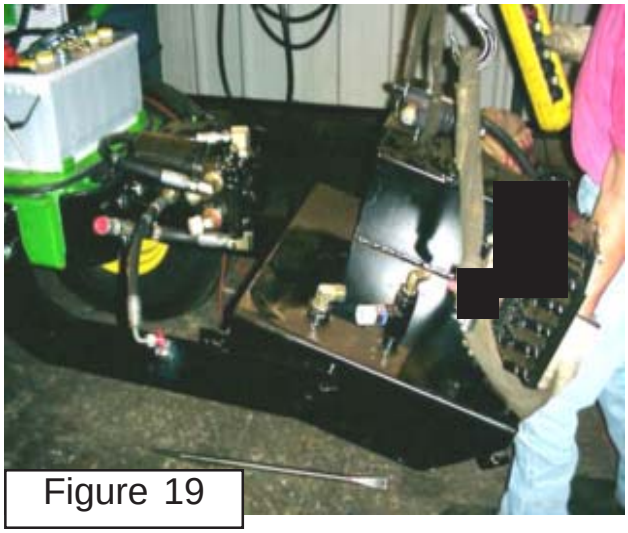


Figure 19

Figure 20

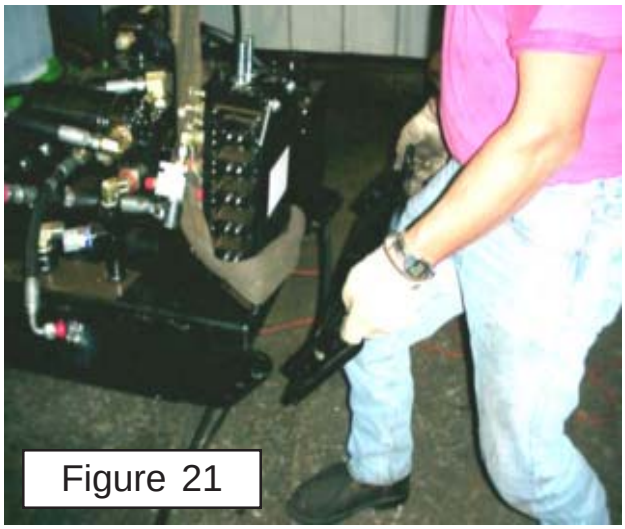


Figure 21

Figure 22

NOTES

Section 6

BRAHMA

Caterpiller Challenger MT465B Cab / 4 WD Tractor

Control Valve Installation

Mounting Cylinders and Control Valve:

1. Connect Cylinders to Mounting Bracket.

If the cylinders are not already connected, Connect the cylinders to the under beam. (See Figure 9). It is easiest to connect the bottom cylinder first, the pin can be removed or inserted through the holes in the mounting bracket. A hoist can be used to lift the mount arm, this will help to align the cylinder pin holes. After the lower (Tilt) cylinder is connected the upper (Lift) cylinder can be connected, this cylinder is connected to a lift arm on the other end and should allow it to reach the under arm without extending the cylinder. IF YOU NEED to extend any cylinders, unplug the hoses. Place the hoses in a clean container as some oil may have been left in the cylinders at the time of testing and /or assembling them at the factory. Once the cylinders are extended re-plug the hoses to keep contamination out, NEVER leave hoses, valves, pumps, motors or any hydraulic component open during assembly. ONLY unplug them when ready to assemble them.

Figure 9

2. Remove End Cap From Valve Asy.

IMPORTANT INFORMATION! The Control valve will have to be modified from the way it is received. The end cap will need to be changed.

Turn the valve on its side to where the standard end cap (cap with no outlets is showing (See Figure 10). There are three tie rods connecting the valve segments together. These valve sections should be left together when tie rods are unbolted, remove the nuts off tie rods, do not pull tie rods out. If the valve sections are separated the O-Rings could be moved or fall out from between the sections.

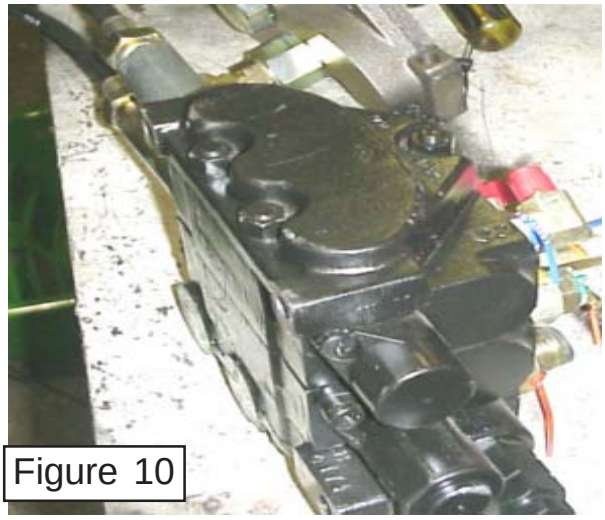


Figure 10

3. When the end cap is removed you will notice that there are several O-Rings (See Figure 11), sometimes they will stay on the end cap and sometimes on the valve section. Always check where these O-rings are. There is a grooved circle around the holes on the cap or the valve segments. The O-rings need to be in these grooves. If the O-Rings need to be held in place use light coating of petroleum jelly (Vaseline) to hold them in place. The old end cap will not be used again.

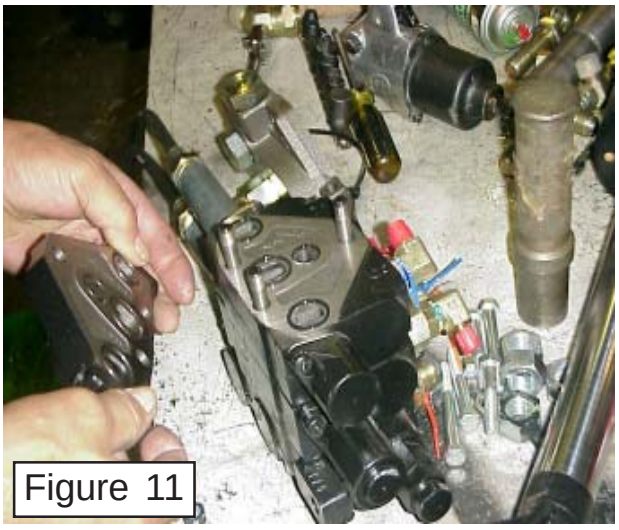


Figure 11

Mounting Cylinders & Control Valve

4. Locate New Power Beyond End Cap. The new power beyond cap (P/N 02975061 See Figure 12 & 13) is shipped as a part in the Brahma Mount Kit (Kit P/N 02983164) and will need to be installed onto the valve to modify the valve to function correctly in this application (See Figure 12).

5. Locate the Hydraulic Elbow Adapter. The end cap will need an adapter installed into it. Adapter, Hyd Elbow P/N 02161300 (8MJ - 10MB90) as shown (See Figure 12). Install the adapter as shown in figure 12, the angle can be changed later if desired, or this elbow could be installed later if desired.

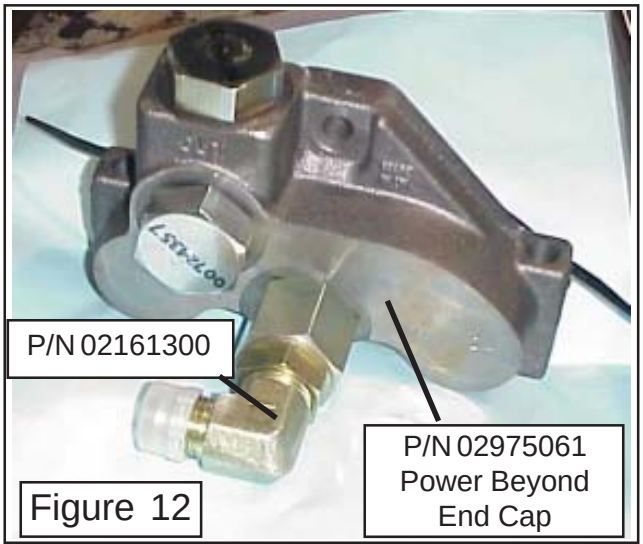


Figure 12

6. Install Power beyond End Cap. Make certain all the O-Rings are in the proper location, if you need to hold an o-ring in place use petroleum jelly (vaseline) to coat the o-ring. A light coat of petroleum jelly will hold o-ring in place and will not contaminate hydraulic oil (See Figure 13). Lower end cap down over the tie rod bolts carefully (See Figure 14), the end cap will only fit one way. IMPORTANT INFORMATION! Start the nuts onto the tie rod bolts and tighten them until they touch the valve end cap only, DO NOT tighten beyond that point as damage to the valve could occur. SEE STEP 7 for proper valve tightening sequence.

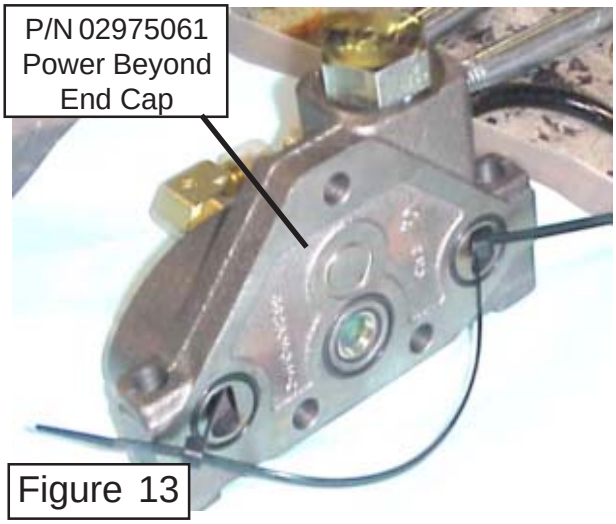


Figure 13

7. Proper End Cap Tightening Procedure. It is very important that this step be followed when tightening the valve end cap. 1 st. Tighten the three tie rod nuts 7 to 10 ft. lbs torque, do this alternating from one nut to the other a little at a time till all three are torqued. 2 nd. Lay the valve on a flat surface with the ports facing up. make certain the components of the valve are sitting flat on the bench, if one or more of the feet of the valve are sticking up use a mallet and lightly tap the corners until all four are level and touching the bench. This will allow the center segments to hang straight on the center tie rod bolt. 3 rd. Torque the three nuts to 20 ft. lbs. alternating from one to the other in 4 to 5 ft. lbs increments. IMPORTANT STEP! If the above procedure is not followed the valve segments could be installed crooked and warp the surfaces and/or make the valve leak.

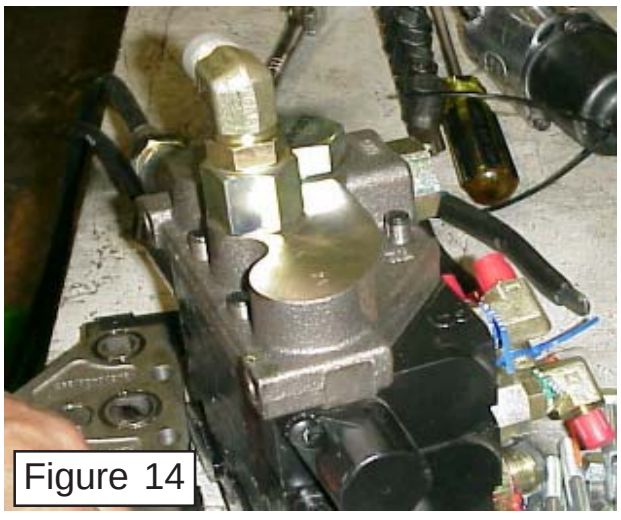
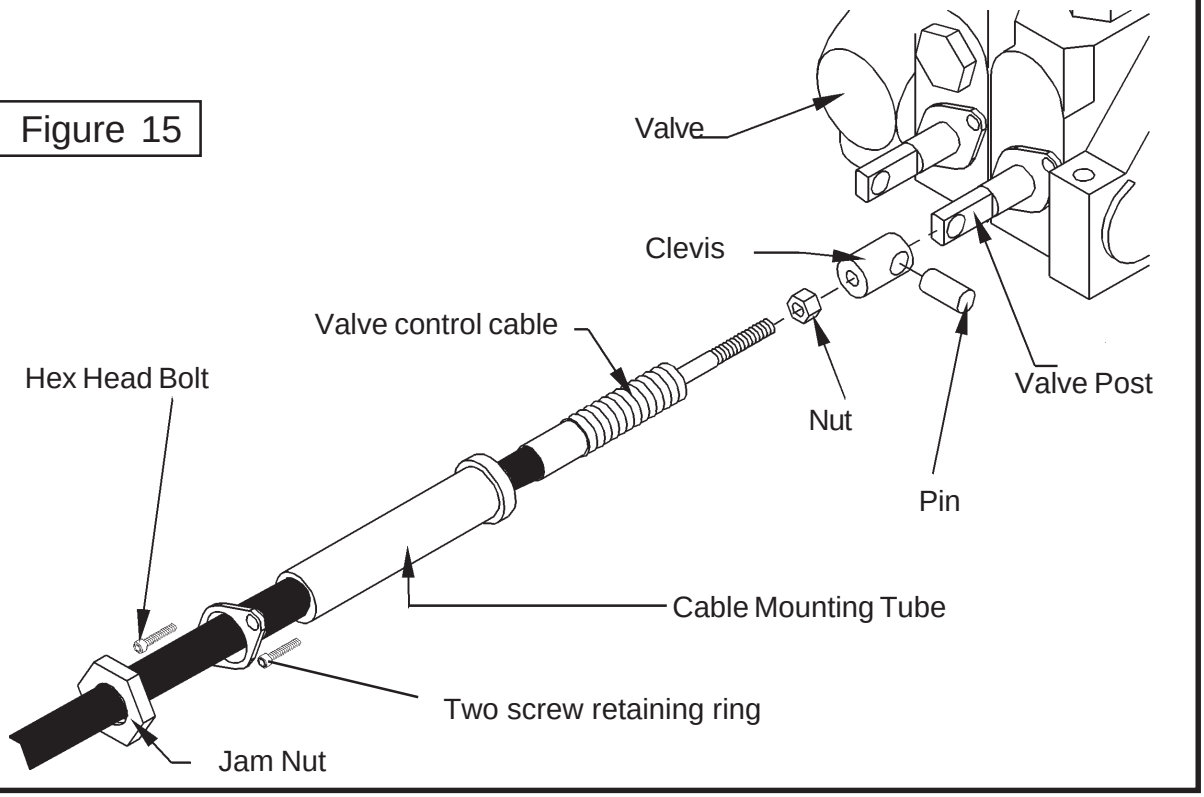


Figure 14

8. Attach the Control Cables to Valve. Cable are included in the mount kit to the valve, with the Cable Connecting Kit in the Common Box. There should be an instruction sheet included in the cable package.

- **A.** Remove the two screws that are around the spool on the valve.
- **B.** Screw the large jam nut onto the cable past the threads until the jam nut slides down the cable (See Figure 15).
- **C.** Slide the retaining ring (2 screw retaining ring) on over the threaded cable housing (See Figure 15).
- **D.** Screw the cable mounting tube onto the cable housing until the tube unscrews off the threads and slides onto the cable outer housing.
- **E.** Screw the Jam Nut onto the threaded cable end followed by the clevis, tighten the jam nut down against the clevis to keep the clevis from turning
- **F.** Insert the clevis over the valve spool post and insert retaining pin into clevis and through the valve post.
- **G.** Screw the cable mounting tube back onto the threaded portion of the cable housing until the tube touches the valve body.
- **H.** Slide the two screw retaining ring over the mounting tube and down against the valve body, install the two screws into valve body but only snug them down for now. The retaining screw to be tighten after the cables have been adjusted later.
- **I.** Thread the large jam nut onto the cable housing and screw it down against the cable mounting tube. Do not tighten it only snug for now (See Figure 16).
- **J.** DO NOT remove any caps

Figure 15



Mounting Cylinders & Control Valve

9. Mount Valve w/ Cables to frame. The valve will mount on the frame above the cylinders, the mounting holes are already in the frame (See Figure 17). Insert the four bolts (1 in each corner of the valve) and bolt it to the frame.

10. Locate tractor factory Hydraulic Supply hose to Tractor remotes. The tractor has a factory hydraulic supply hose that connects on the lower LH side down beside the transmission (See Figure 18). The other end connects to the LH side of the tractor remotes, this is called the power beyond port. Insert a drain pan under the bottom of the hose to catch the oil that will run out. Remove this factory hose at both ends and discard the hose, it will not be used again.

11. Locate the three # 8 hoses. There are three number # 8 hoses that will connect the add on control vale to the tractor hydraulic system (See Figure 20 & 21).

Hose

P/N 02972267 #8 - 8FJX - 8FJX90 - 112" long
P/N 02960004 #8 - 8FJX - 8FJX90 - 92" long
P/N 02961853 #8 - 8FJX - 8FJX90 - 84" long

Adapters

P/N 0692300 8MJ 0 22 MM w/ Seal (Qty 1)
P/N 02861100 8MJ - 8FJX90 (Qty 2)
P/N 02961851 8MJ - 10 FJ (Qty 2)

CAUTION: DO NOT leave any fittings, hoses, ports or any other opening in hydraulic system during assembly, always use compressed air and clean out all new hoses before installing them. This will make certain there is nothing in hoses to contaminate hydraulic system.

Figure 16

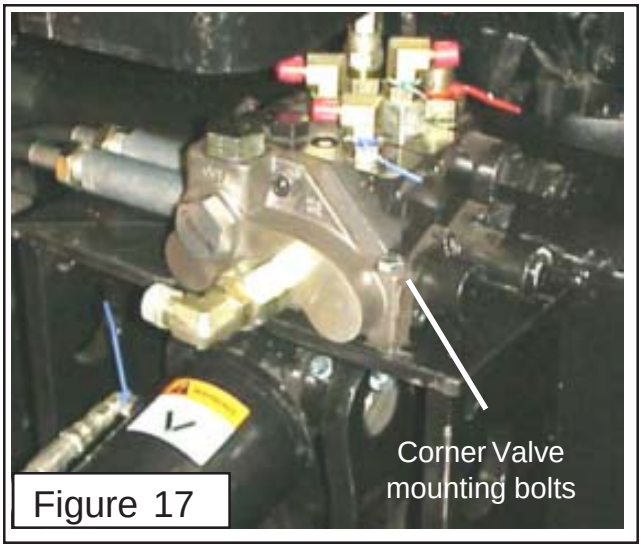


Figure 17

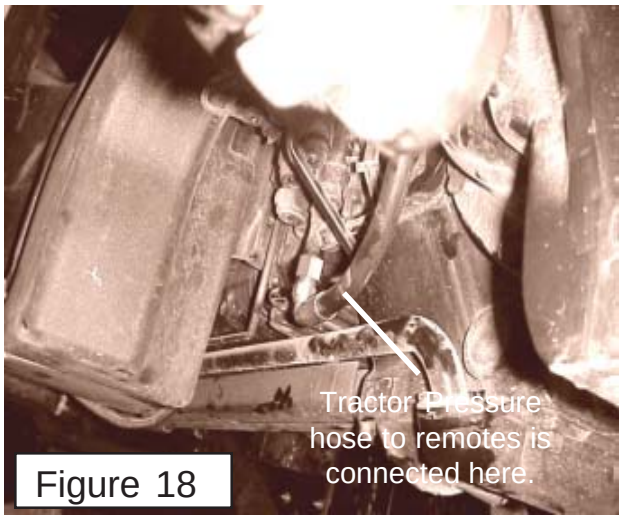


Figure 18

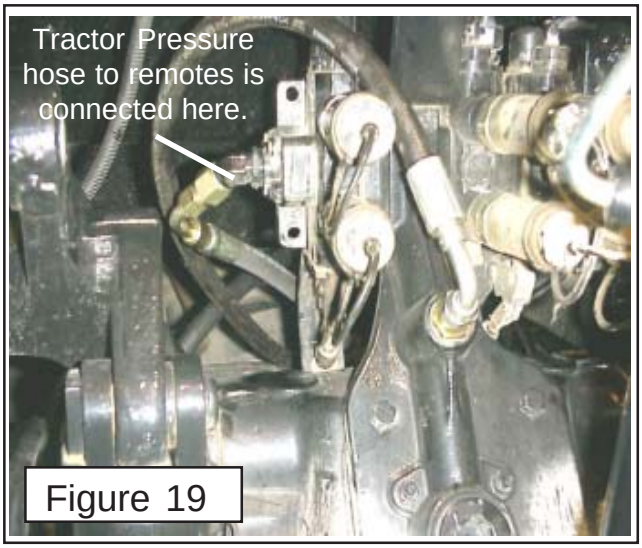


Figure 19

Mounting Cylinders & Control Valve

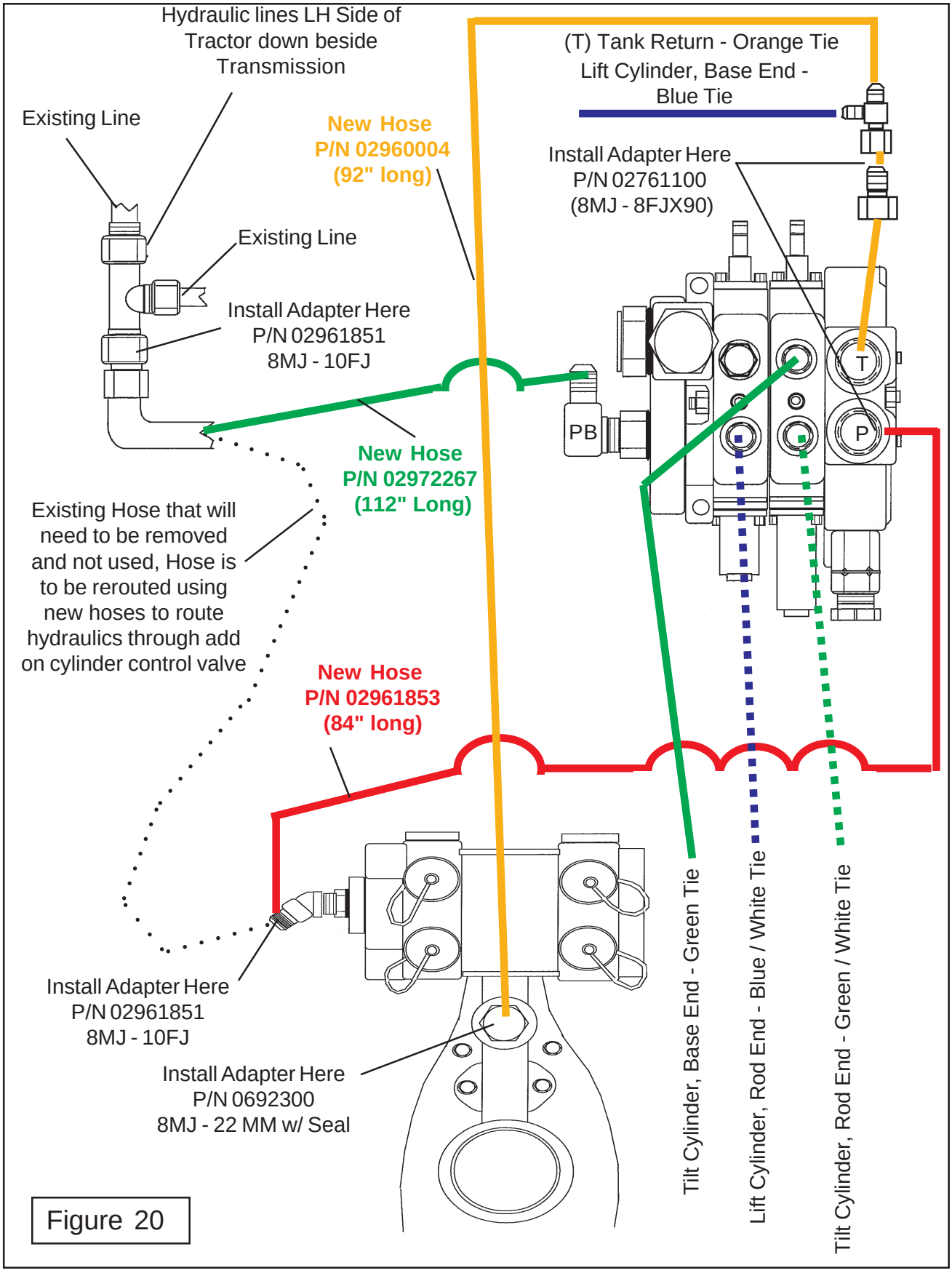


Figure 20

Mounting Cylinders & Control Valve

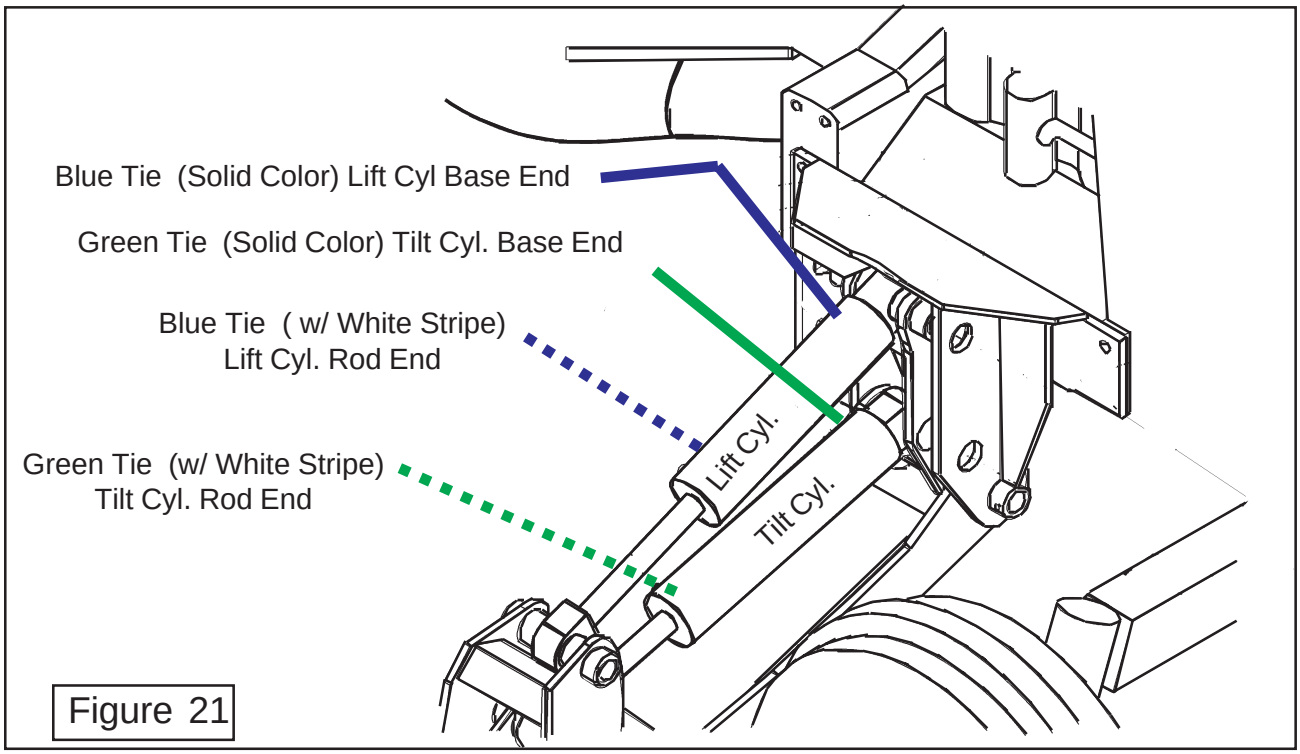


Figure 21

12. Connect the Cylinder Hoses to Control Valve. The cylinder hoses connect to the control valve as shown in hydraulic diagraham (See Figure 20 & 21). After the hoses have been connected to the valve check all the hoses to make certain they are not kinked, rubbing somewhere or to close to the exhaust sytem. If hoses need to be moved, tied up to clear then it should be done before unit is run (See Figure 22).

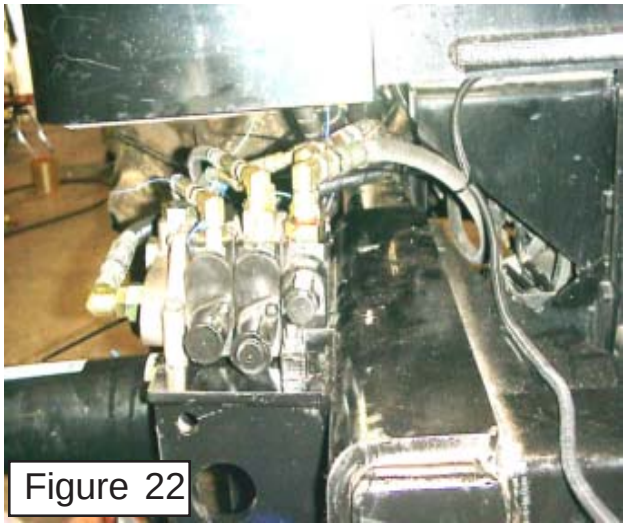


Figure 22

NOTES

Section 7

BRAHMA

Caterpillar Challenger MT465B

Cab / 4 WD Tractor

Joystick & Electrical Connections

Joystick & Electrical Controls Mounting

Joystick Mount Installation:

1. Fitting Joy Stick Mount Stand to Tractor Cab. The joystick stand is a weldment that will bolt to the floor of the cab (See Figure 1 & 2). Sit the stand inside cab of tractor and position it for the best reach by the operator, sometimes it is best to consult the operator to see what is needed by them. once the location is determined use a marker pencil to mark the holes in the stand to the floor mat of cab.

2. Bolt in the Joystick stand. Once the location has been determined and marked check under the cab to make certain that the other components will not be in the way of the drill or the bolts when installed. Drill the four mounting bolt holes and the hole in the center to run the electrical wiring through (See figure 3)

P/N 02982176
Control Stand
Weldment

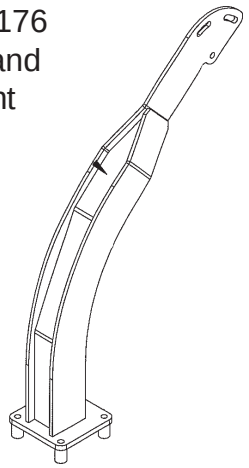


Figure 1

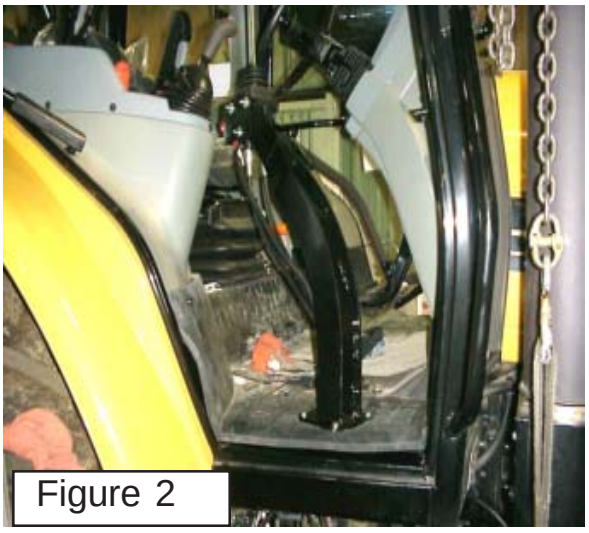


Figure 2

Joystick & Motor Control Decal:

1. The Joystick and Motor Control operation Decal will need to be installed in the cab of the tractor. This is a transparent decal that shows the direction of movement of joystick in relation to the function that is activated. Install this decal where it is easily in view by the operator but where it will not interfere with his line of sight of his environment (See Figure 4)

Control Cables & Wire Harness installation:

1. Control Cable & Wire Harness Route through Cab Floor. The wire harness and the control cables will be inserted through the cab floor in the same hole (See Figure 3). It is best to mark the cables as to which is which (Lift or Tilt), see Figure 5 for which cable connects to where on joystick and control valve section for which cable is connected to where at the valve. These cables must be connected correctly so the joystick will operate as the decal shows (See Figure 4)

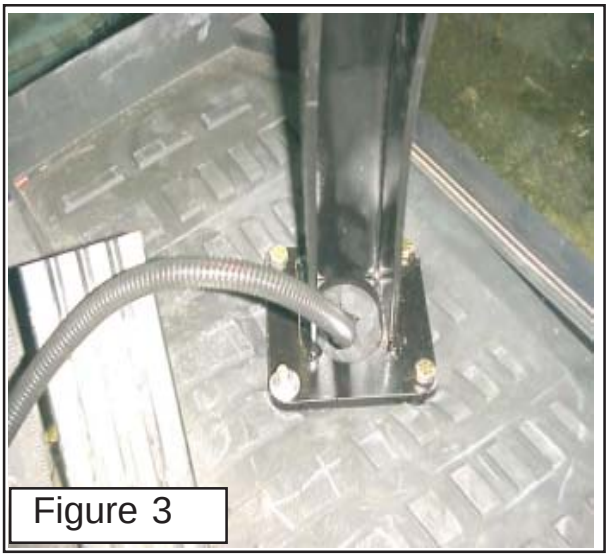


Figure 3

CONTROL CABLE TO JOYSTICK CONNECTION: (See Figure 5, 6 & 7))

(When using Alamo Industrial Valve Only)

1. Remove the Cable retaining bolt for one of the directions (Lift shown).
2. Position the Joystick so that the Lift Plunger is accessible. Check the Joystick, for the proper direction for each cylinder.
3. Connect the cable leading from the left (inside) valve section to the left cable port on the joystick, this controls the Lift Cylinders motion.
4. Repeat the procedure for the Tilt Cylinder.
5. Route both cables up to the Control Valve so they do not interfere with the operation of the tractor or the mower
6. Install the top cover of joystick using the rubber boot on top (See Figure 7 & 8).

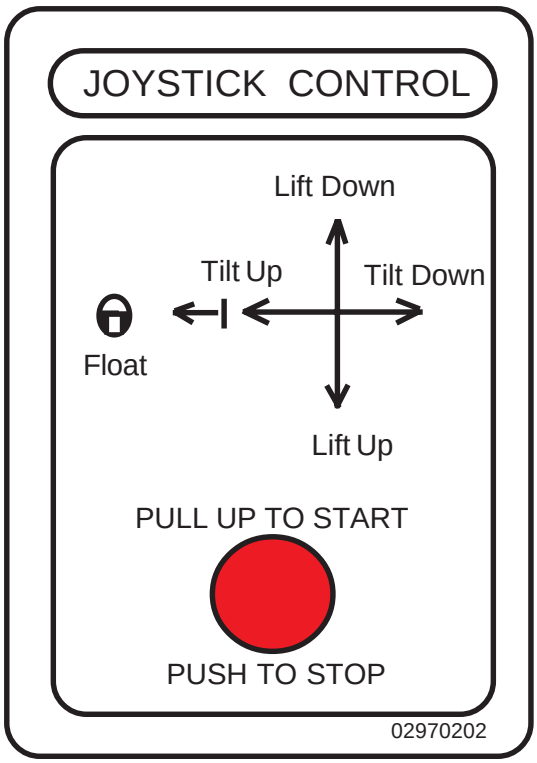
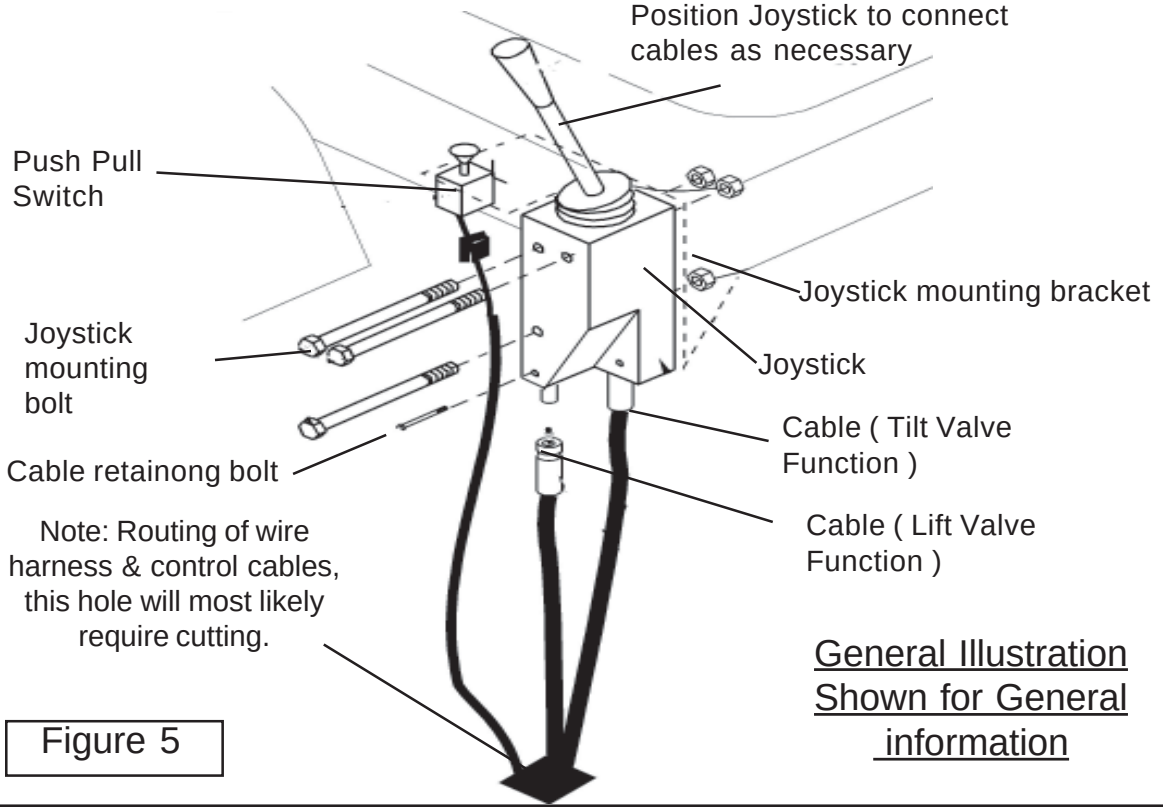


Figure 4



General Illustration Shown for General information

Figure 5

Joystick & Electrical Controls Mounting

CONTROL WIRING:

1. Disconnect the Battery negative lead (ground) from the battery terminal to prevent any damage to the electrical system.

2. Running the Wiring Harness section with the plug on it from the inside of the cab to the Hydraulic tank mounted on front of the tractor. The second leg of the wire harness with the wires sticking out of will stay in the cab and connect to the tractor electrical system. Make certain that the Wiring Harness is free and clear of any moving parts from the Mower or the Tractor, or any condition that may sever, bind, or entangle the cable. The wiring harness will run through a protective boot in the floor of the cab. If there is not a hole under floor mat to run wiring through the cab floor one will need to be cut with a hole saw.

3. Install Push / Pull Switch & Switch Mounting Bracket. The push pull switch bracket will bolt to the side panel in the cab. The exact location can vary as long as it is mounted in a convenient location for operator. Alamo industrial recommends mounting bracket as shown. The Switch will mount to bracket. Plug the wire harness plug to switch (See Figure 5 & 6).

4. Install Wire Harness Through Tractor Floor. The wire harness will have two leads, one stays in the cab to connect to the tractors system the second goes through the floor to connect to the pump solenoid. Both will run through the cable boot to where they split up under the floor mat, the outside lead will go through the floor and the inside lead will go under floor mat to the tractor control panel (See Figure 9, 10 & 11).

Figure 6

Figure 7

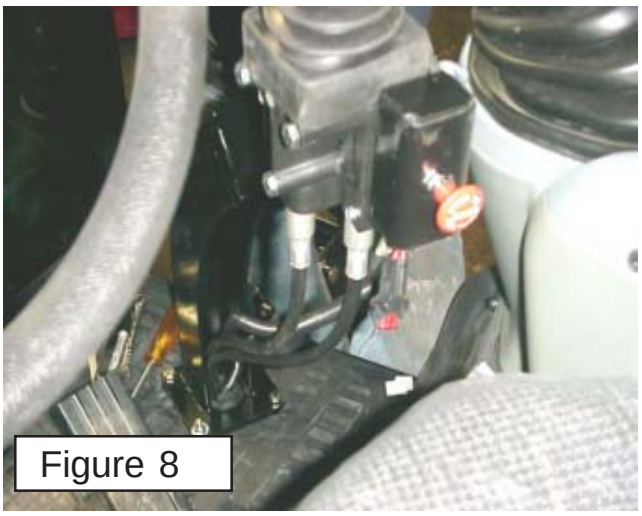


Figure 8

Joystick & Electrical Controls Mounting

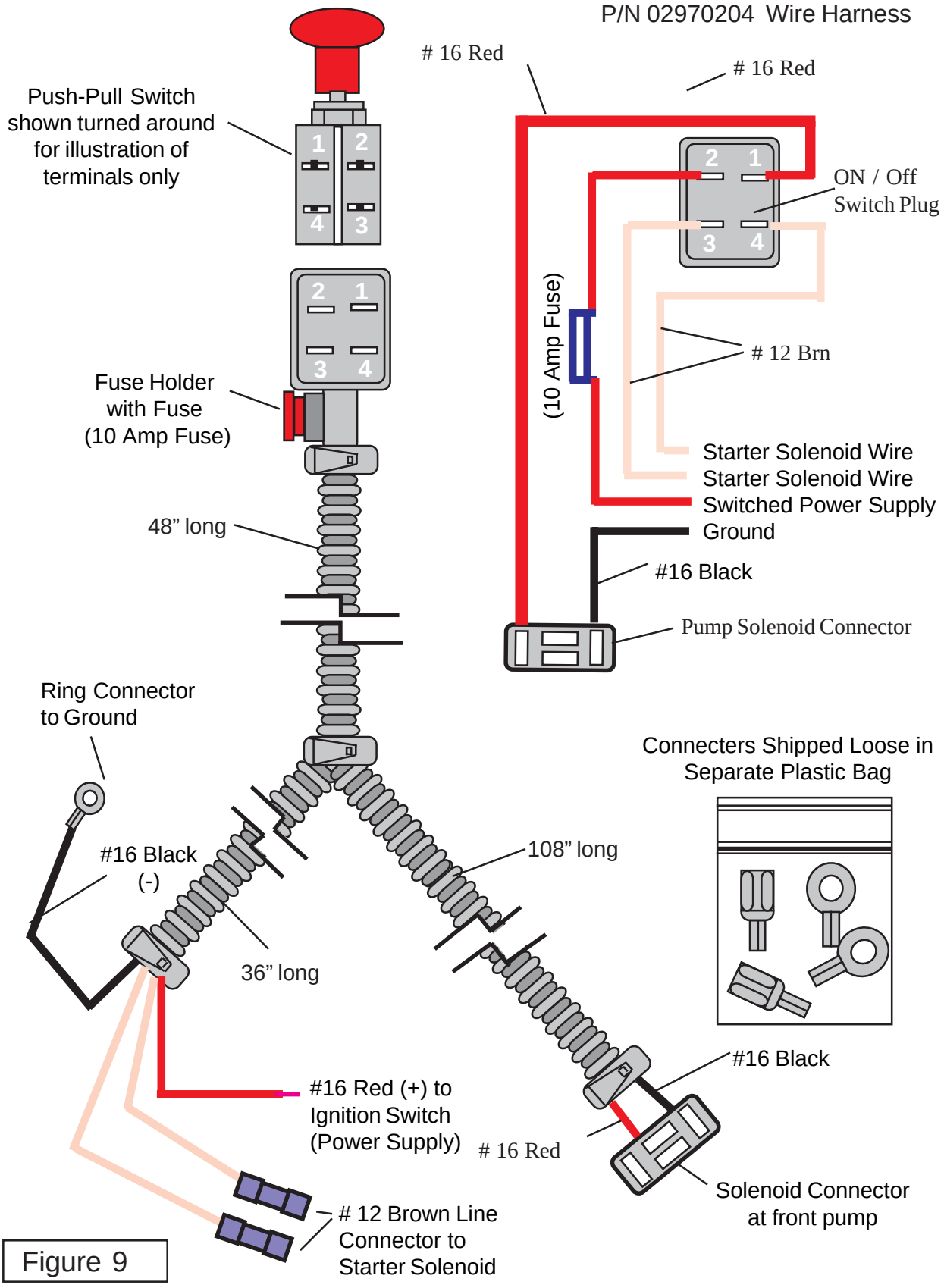


Figure 9

Joystick & Electrical Controls Mounting

5. Connect Positive power Supply Wire from **wire harness.** Remove ignition switch access panel or ignition switch if panels are not provided in dash. Identify the “Ignition "ON" / "OFF" Positive” wire. This wire must be connected to a wire that is only charged when ignition switch is on and dead when ignition is off. Connect power supply wire as close to the switch as possible. Do not connect wire into wire that will be overloaded because something else is connected to it. If power supply wire is connected to a wire that is positive when switch is off and operator leaves the push pull switch on it will drain the tractor battery (See Figure 10).

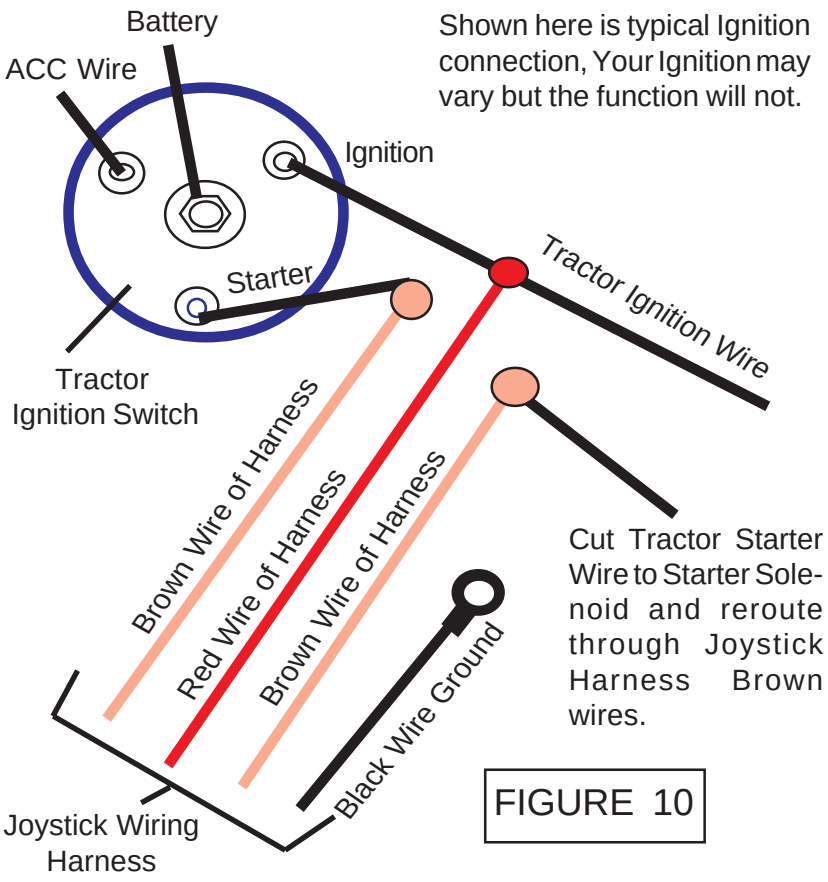


FIGURE 10

6. Find the “Ignition-Start” wire leading from ignition switch to starter solenoid of the tractor, cut the wire in two as close to ignition switch as is reasonable and still have room to work. Strip off 1/4" to 3/8" of insulation from each wire. Connect the two brown wires of harness to this wire. Solder the connection and insulate with a good heat shrink tubing (See Figure 10)

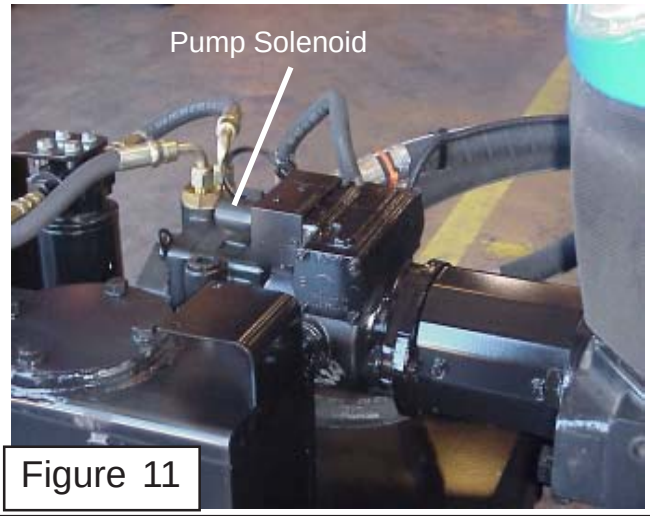


Figure 11

7. Connect Wire Harness to the Pump Solenoid. The wire harness has a plug that will connect to the pump solenoid at the pump on front of the tractor (See Figure 11). after wire harness has been connected use plastic ties to tie the wire harness to the hoses wunning along side the right side of tractor. Tie wires so they will not be pinched or pulled.

8. Installation of the wiring harness in now completed. Recheck all wires according to color and instructions for that color **(See Figure 10 & 11).**

9. Reconnect the negative lead (ground) to the battery terminal . **DO NOT START TRACTOR** until the assembly is complete and unit has been inspected as well as filled with oil.

Section 8

BRAHMA

Caterpillar Challenger MT465B

Cab / 4 WD Tractor

Pump Hose Connections & Head Installation

Connecting Hoses To Pump & Frame

GENERAL INFORMATION AND WARNINGS - HYDRAULICS:

(See Figure 1)

Inspect and clean all hydraulic hoses and fittings prior to installing them onto the tractor or Mower. If dirt or material is seen in any of the parts, they should be washed and cleaned thoroughly with an oil-compatible solution. Do not blow the material further into a hose since this sometimes does not remove the foreign material and can cause damage to hydraulic components down stream.

It is important that pipe thread sealant be used only on solid connections of pipe thread; never on connections between swivel fittings and external pipe threads or on straight thread "O" ring fittings. Use pipe thread sealant suitable for hydraulic service. Do not substitute some other type of sealant, i.e., teflon tape, paint, shellac, etc.

Hoses supplied have two types of Fittings; solid or rigid. Some Hoses have rigid Fittings on both ends; others have a rigid fitting and a swivel fitting. Hoses with two rigid fittings will fit into either an internal rigid thread, or a swivel adapter union. When installing either type hose, rigid fittings must be installed first. Then install the swivel end of the hose.

The Brahma hydraulic system incorporates three basic types of hydraulic fittings:

A. **Standard pipe** (NPT or NPTF) thread fittings. This type requires a small amount of evenly-applied sealant.

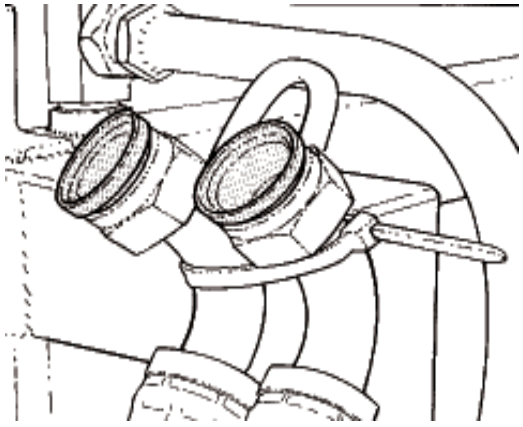
B**.** **JIC Swivel fittings**. This type does not require any sealant on the swivel end because it seals against an internal flare.

C. **"O" Ring fittings.** This type does not require any sealant on the "O" Ring end of the fitting.

It is extremely important to avoid getting pipe thread sealant inside the fittings or hoses. KEEP THE INTERIOR OF ALL HYDRAULIC COMPONENTS ABSOLUTELY CLEAN. Inspect the inside diameter of each hose before assembly. Ensure that no obstruction is present. Dirt, sand, dust, etc., are abrasive and, once in the system, can cause immediate or early failure.

CAUTION

When assembling the fittings and hoses, be careful not to introduce any dust or contaminants into the system. Keep all fittings, hoses, and hydraulic components sealed until installed. Do not allow any components to lie open and exposed to dust or contamination. Do not lay parts down on the dirt or sand and then assemble them as this will introduce contamination into the system. **(See Figure 1,2 & 3).**



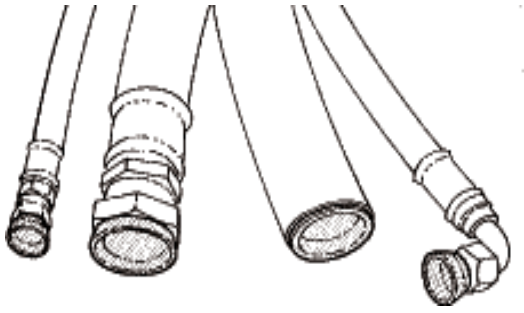


Figure 1

Connecting Hoses To Pump & Frame

Refer to your Operator's Manual and Parts Listing for part numbers and Hydraulic Schematic. Tighten any leaking Hydraulic Fittings. If pipe fittings leak, loosen the fitting, apply a pipe thread compound to pipe threads and tighten. Care must be taken when tightening Hydraulic Fittings. Too much tightening can cause the fittings to crack and require replacement. Please use recommended hose end torque values.

WARNING 

Once Pumps are installed, DO NOT start the tractor (which will turn the pump) unless the hydraulic circuit is filled with AW ISO VG100 hydraulic fluid. Running pump without oil will cause nonwarrantable, and immediate damage

HYDRAULIC HOSE CONNECTIONS: (FRONT MOUNTED TANK HYDRAULICS)

On all Hoses, and Major Connections, colored ties are used to identify the proper flow of hydraulic fluid. There are two hydraulic systems; The Motor Hydraulics and the Cylinder Hydraulics.

1. The Motor Hydraulics consists of the Front Mounted Pump and Tank, and the larger hoses, and the Motor on the Mowing Head (which can vary). There are three types of hoses in this system, marked with the colored ties.

Color(s)	Abbreviation	Hydraulic Direction
Red Tie	R	Pressure Flow
Orange Tie	Or	Return Flow
Blue Tie	B	Case Drain

Note: The colored ties do repeat, but the motor hoses can be identified by their large size, compared to all the other hoses.

2. The Hoses for the Brahma are included in the Mount Kit and with the Head, each may vary in length.

3. Connect the Mount Kit hoses to the marked Tank Ports, and route the hoses to the tractor so that they do not interfere with the tractor, mowers operation, Be especially aware of any pinch points on the tractor or any position where the hoses may become entangled in brush.

4. Connect the Mount Kit hoses to the Right Side of the Fittings located on the Middle Rear of the Arm, first- Red, second - Orange, then Blue.

5. Connect the Hoses from the Head to the Left Side of the Arm Fittings in the same order, Note the Motor is marked with the same color codes.

6. Check each connection by following one hose and checking the color connections.

Connecting Hoses To Pump & Frame

Pump To Frame Hose Connections:

1. Connect Hoses to the Mounting Arm Bulkhead. The Mounting Arm has a bulkhead fitting lug welded on to on the rear side. These lugs are color coded with a plastic tie on the bulkhead fitting (See Figure 2).

Orange Tie = the top fitting
Red Tie = the middle fitting
Blue Tie = the bottom fitting

Orange Tied Hose Returns Flow back to Front Pump Hydraulic Reservoir.
Red Tied Hose Supplies Pressure Flow From Front Pump.
Blue Tied Hose is Case drain from Motor back to Hydraulic Tank in front of tractor.

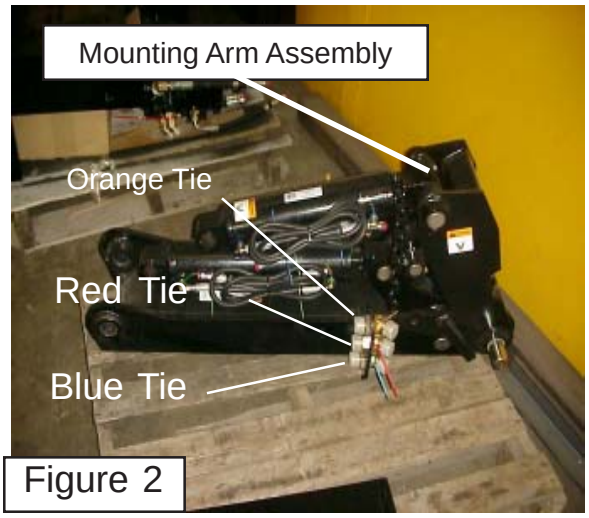


Figure 2

2. Run Hoses Along Side RH Frame Rail. The hoses rub up and over under beam and back along the RH side of Tractor Frame. Install hoses through the sleeving material furnished (See Figure 3). Hoses will be run through a bolt hose ring (See Figure 4). Hoses will then be connected to the tank and pump as shown (See Figure 5)

Caution: DO NOT try to start tractor as there is no hydraulic in tank and all hoses are NOT connected.

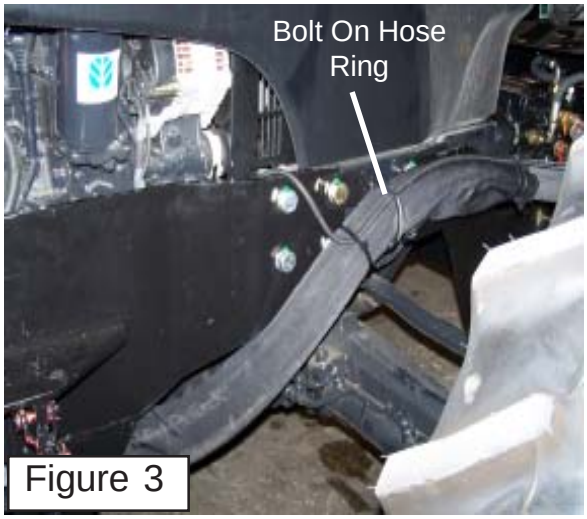


Figure 3

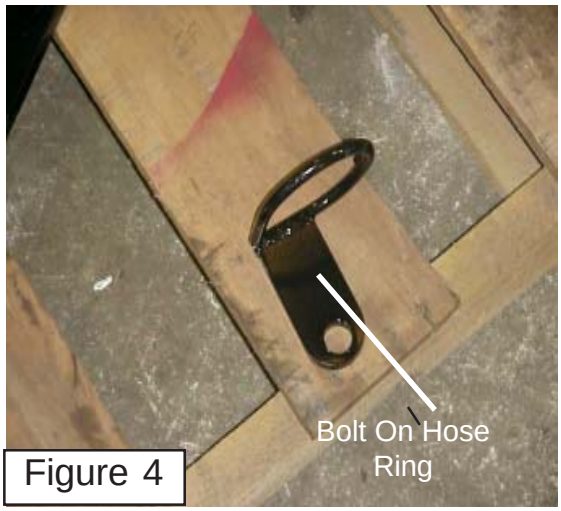


Figure 4

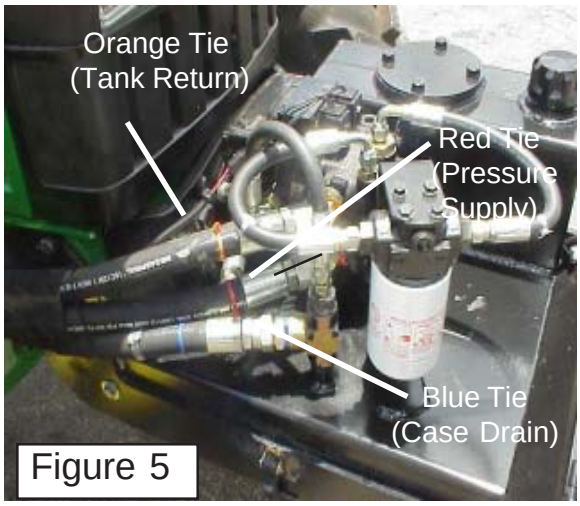


Figure 5

Connecting Head To Frame

Install Cutting Head:

1. Prepare to Install Cutting Head. There is a Flail Head and a Rotary Head option. Shown here is the Flail Option. The Mounting frame will be shipped already bolted to the Flail Head. The Rotary Head the Mounting Frame is part of the head (See Figure 6). There are lift lugs bolted to each end of the flail deck for lifting (See Figure 6 & 7)

There are two pins that will need to be removed from the mounting frame before attempting to install the Cutting head. The Tilt cyl. Arm Pin and/or the Head Pivot Pin. The head pivot pin can be in Head Frame or it can be in Mounting Arm depending which one you used to install mounting arm. (See Figure 7)

Figure 6

2. Align Cutting head with Mounting arm. The Cutting Head will have to aligned with the mounting arm and the tilt lug weldment at the same time. This is recommended that two person work on this together. When the Head Mounting frame is aligned with the mounting arm install a temporary under size pin into the front side to help hold the head in position (See Figure 8). From the back side start the pivot pin into the hole, make certain to try to keep the retaining bolt hole of pin a closely aligned with the frame as possible. DO NOT use excess force to install this pin. With the Head suspended by a hoist have your helper move the head to keep it from binding on pin while you install the pin with a minimum amount of force. If the Teflon Bushing are damage during this installation you will know it because as pin is installed it will push out pieces of the bushing. If this happens the bushing must be replaced.

Use a Rubber Hammer or a soft piece of metal such as brass or aluminum to protect the pivot pin if it is hammered on. Installing the pivot pin will push the under sized pin out that you have installed into the front. Go slowly as you will need to align the lift lug as the pin starts through and then the outer part of the mount arm. Sometimes it is best to put a floor jack under the mounting arm to help align the mounting arm and head.

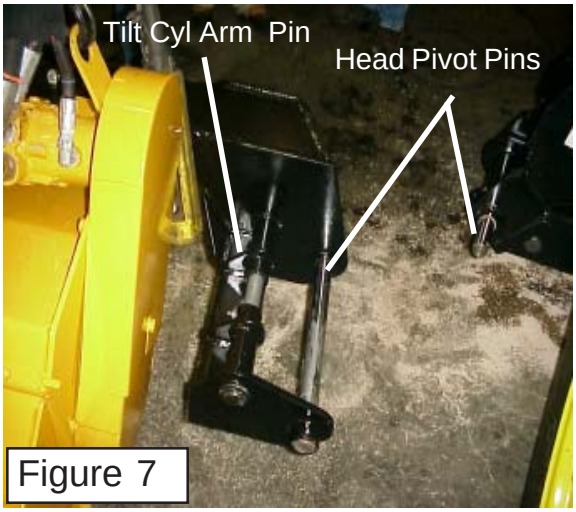


Figure 7

Figure 8

Connecting Head To Frame

Install Cutting Head:

3. Secure The Head Pivot Pin. The head pivot pin uses a bolt and nut to retain the pin. You may have to realign the hole in the pin with the hole in mounting frame. If you can not see the hole at all you can push the pin back out a short distance till the pin hole is visible, not to much or you will lose the alignment of pin and components. Using a small punch or bolt insert it into the pin retaining hole, using a hammer tap on punch or bolt to rotate pin. NEVER USE a tool that will scratch or cut pin. It will help if you have you helper rock the head a bit as you align the pin.


Figure 9

4. Install the Lift Lug Pin for the Tilt Cyl. Start the Lift Pin into the front side of the frame. Push pin through while holding the lifting lug into alignment, the other end of this lug is connected to the same pivot bracket as the cylinder is connected to. Sometimes it will be required to extent or retract the cylinder to align this lug. If you need to extend or retract the cylinder you can usually do it with a pry bar, but you may have to loosen the hoses to let pressure escape. The lift lug uses a retaining bolt and nut, if you need to align the retaining bolt hole in pin with hole in the mounting frame. The pin has a head welded on to it in the front side that can turned by using a large pair of pliers or a pipe wrench. Align pin and install retaining nut and bolt. (See Figure 10, 11 & 12) NOTE: The two holes where cylinder can be connected, which hole determines what degrees the head will fold into transport.

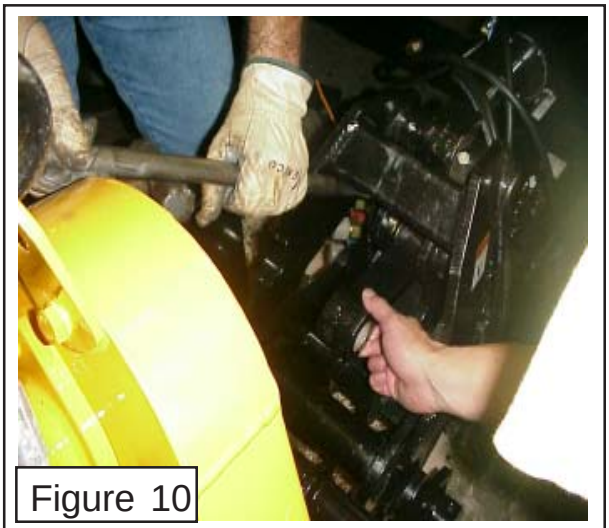


Figure 10

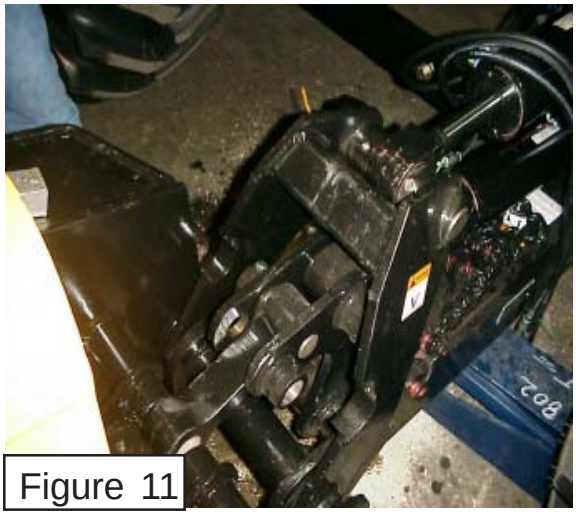


Figure 11


Figure 12

Connecting Head To Frame

Install Cutting Head:

5. Check Head mount Frame To Head Connections. The head mounting frame for the flail head is a bolt on clamp type. Always check these bolts to make certain they have been tightened (See Figure 13).

6. Connect Hoses from Head to Mounting Arm. The hoses are already assembled on to the head and will have the sleeving installed. It may be required to loosen some of the fittings at the Motor to allow hose / Fitting clearance or for the hoses to run in the direction you need them to. These hose will have color coded plastic ties on them.

Orange Tie = the top fitting
Red Tie = the middle fitting
Blue Tie = the bottom fitting

Orange Tie Hose Returns Flow back to Front Pump Hydraulic Reservoir.

Red Tie Hose Supplies Pressure Flow From Front Pump.

Blue Tie Hose is Case drain from Motor back to Hydraulic Tank in front of tractor.

Make certain that the hoses are connected where they will not rub or get pinched when Head is folded up (See Figure 14).

7. Connecting Rotary Head. The rotary head will connect the same as the Flail Head with the exception of the bolt on mounting frame like the Flail has. The rotary Head mount is built on the the rotary head. The hoses will have the same color coded plastic ties on them as the flail has and will connect in the same order (See Figure 15).

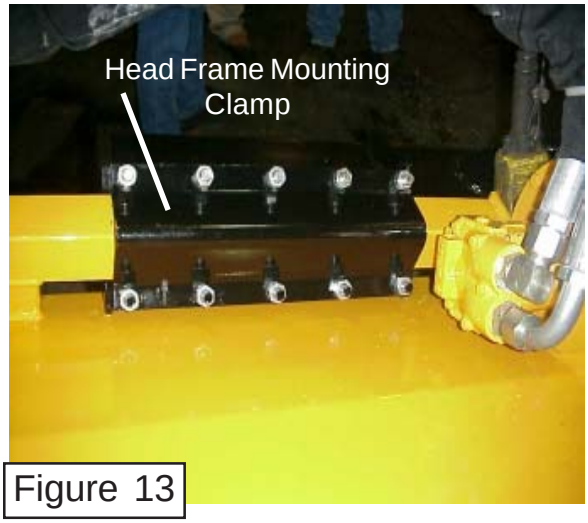


Figure 13

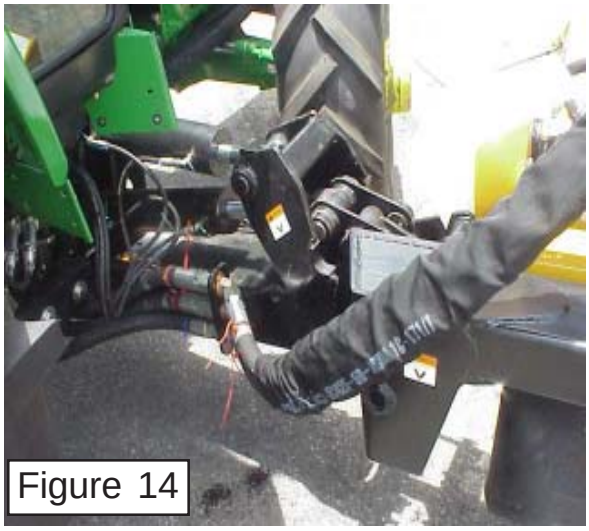


Figure 14


Figure 15

NOTES

Section 9

BRAHMA

Caterpillar Challenger MT465B

Cab/ 4 WD Tractor

Tractor Start Up Procedures

Tractor Start Up Procedure

HYDRAULIC TANK FILLING:

1. Remove the Filler Cap and fill the Hydraulic Tank completely full of AW ISO VG100 Fluid, however do not over flow, or spill over.
2. Replace Filler Cap and clear area to start the Tractor and the Hydraulic Pump as outlined in the Operation Section. Make certain that the Mower Head is in a clear safe mowing position (i.e.. Blades down and the area is clear.).
3. Check that all the hydraulic connections are complete on the Motor Hydraulic System and the Cylinder Hydraulic System.
4. Start the Tractor and Engage the Mower (see the **START UP PROCEDURE IN THIS SECTION, SAFETY SECTION, AND OPERATION SECTION** for details) Run the Mower Head for 5 minutes. While the tractor is running, wearing protective clothing and eye protection, **CAREFULLY** check for leaking hydraulic fittings, hoses and ports at this point with a piece of cardboard, **DO NOT USE YOUR HAND!**
5. Shut down completely the Mower and Tractor. And correct any leaking connections.
6. The Pump, Hydraulic Lines, Hoses, and Motor should now be filled with the Hydraulic Fluid. Check the Sight Gauge and add more AW ISO VG100 Hydraulic Fluid to bring the level up to Half to Three Quarters up on the Gauge.

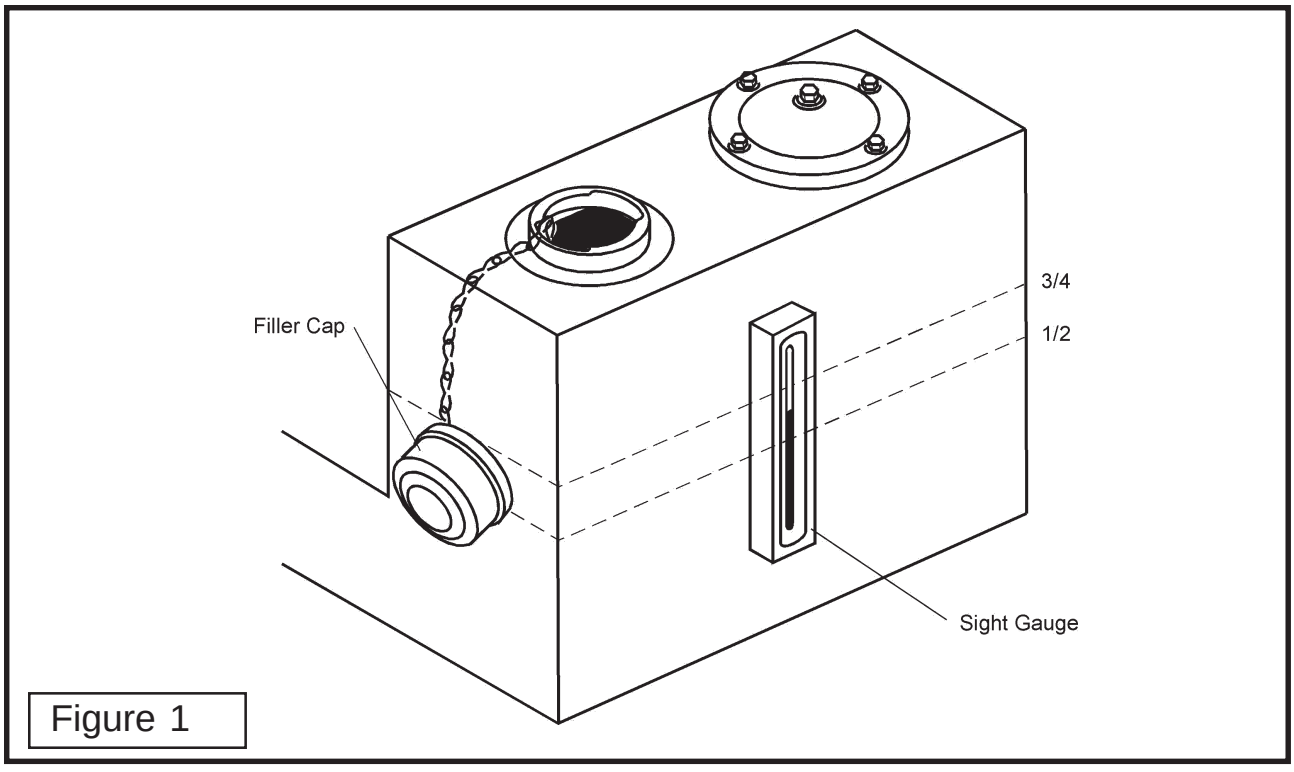


Figure 1

IMPORTANT:

Change the return filter in tank and suction filters after the first 200 hours of operation. Change the filters again at 800 hours; then, change the oil and filters at 1600 hours. After that, continue to change the filter every 800 hours and the oil every 1600 hours. Hydraulic oil to be used, AW ISO VG100 (Alamo P/N 00751758). Use the above procedures as part of a good filter maintenance program.

7. Avoid hydraulic contamination by filtering the hydraulic oil while filling the hydraulic tank. Filter buggies or carts are commercially available for hydraulic system cleanup. These consist of a high-efficiency, high-capacity filter, a circulating pump, a drive motor, and hoses for connecting to the overhauled machine's hydraulic system. **(See Figure 2 & 3)**

When adding hydraulic oil, use only new oil from a sealed barrel. Used oil or oil from an open barrel may contain high levels of contamination. Transfer the new oil into the hydraulic tank by using a hydraulic filter pump unit equipped with a properly operating 10 micron filter. This will insure that the oil being added is clean. Do not just pour the oil directly into the hydraulic tank since most oils (even from a sealed barrel) have contaminants that should be removed, before operating the hydraulic system.

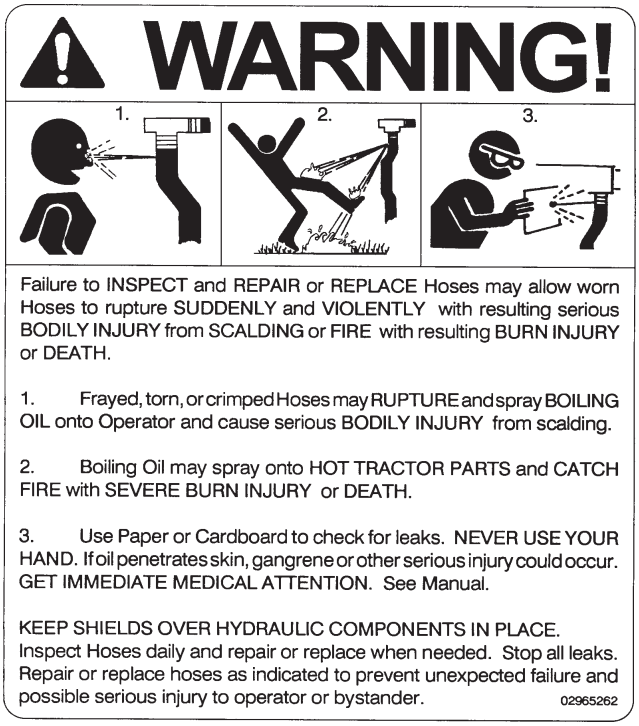
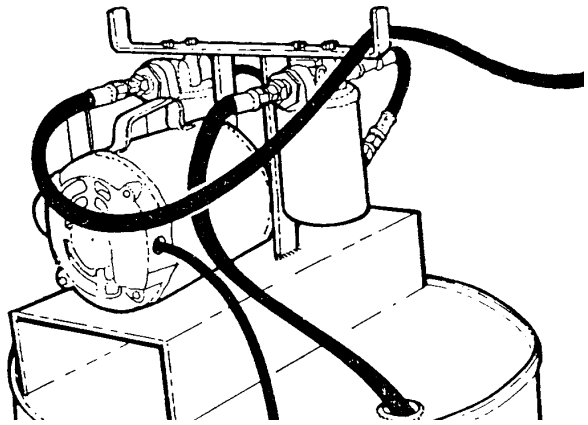


Figure 2



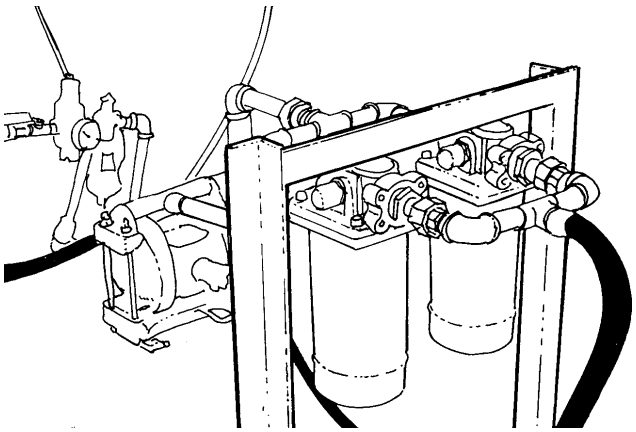


Figure 3

TANK SHIELD ATTACHMENT:

Attach the Tank Shield to the Bumper and the Straps to the Tank with the Hardware supplied in the Common Box.

1. Attach the Tank Straps to the tank with the pin and Cotter pin.
2. Place the Special Washer upon the Hinge posts.
3. Lower and Slide the Shield in place, secure the straps to the rear of the shield.

Tractor Start Up Procedure

START UP PROCEDURE:

1. Read all safety instructions. Decals on the Brahma Mower warn you of particular and multiple hazards. Many decals are attached close to part of the Brahma Mower where there is a possible hazard. Read and make sure you understand the safety messages before you operate the Brahma Mower. Keep all decals clean and readable. Replace lost or damaged decals.

2. Before operating, read all the safety and operating instructions in the Operator's Manuals for both the tractor and mower.

3. When the hydraulic tank has been filled and the mower unit properly assembled, the unit should be started up. **NOTE**: Make sure that no materials, tools, or jacks have been left under the mower head. Make sure the front and rear of the mower are properly guarded to prevent any foreign objects from being thrown by the mower. All other workers should be kept a safe distance from the unit before the mower is started.

4. Start the tractor and idle at a slow engine speed until oil is being pumped.

5. Engage the Cutter Control Valve at low engine rpm and run the mower slowly for a short period until all air is removed from the hoses. Keep all persons WELL CLEAR of mower since Blades can THROW OBJECTS with great velocity for a considerable distance! KEEP CLEAR!

6. With the area clear of any ground and overhead obstructions, work each cylinder on the boom one at a time, several times, to expel any air in the Hoses and Cylinders

7. Run the Mower Head for 5 minutes. While the tractor is idling, its tires are blocked, and you wearing protective clothing and eye protection, **CAREFULLY** check for leaking hydraulic fittings, hoses and ports at this point with a piece of cardboard, **DO NOT USE YOUR HAND!** If any are found stop the tractor immediately and correct any leaky connections.

8. Check the fluid level in the Hydraulic Tank on the Tractor, and add oil if required. As the air has been forced out of the Cylinders and Hoses, it goes into the Hydraulic Tank and reduces the oil level. Check you Tractors operators manual for the proper level and type of oil to be used.

9. Basic trouble shooting guide for first start up.

- **A.** Electrical solenoid valve does not work - check wiring, possible faulty switch, possible faulty solenoid. (see the Maintenance Section for proper adjustment of the Motor Solenoid)
- **B.** Pump is making noise - check for obstruction in suction hose and tank suction assembly, check alignment of pump driveshaft.
- **C.** Cylinders will not raise - hoses from cylinder incorrectly connected to valve bank, pump not suppling oil.
- **D.** Cylinder raise slowly - hoses from cylinder incorrectly connected to valve bank, work port reliefs on valve bank set too low - replace as required.
- **E.** The mower head slows down or stops completely - the filter may be clogged, replace.

Section 10

Brahma

Caterpillar Challenger MT465B Cab/4wd Tractor

Mounting Specifications & Component ID

Mounting Specifications

Caterpillar Challenger MT465B Cab/4wd

As Of: 08-19-05

Tires & Wheels:

14.9-24 (R-1W) Max Front Tire
18.4-34 (R-1W) Max Rear Tire

Valve Type:

Open Center Valve

Mount Kit:

Brahma Mount Kit ……..……..... 02983164

Restrictions:

1. For proper rotary head pitch, we recommend using the maximum tire sizes listed above for 4 wd tractors. Other tire combinations may tilt the head in a manner that creates an undesirable cut. However, flail heads should cut smoothly at any pitch.

2. For additional stability, a 500# wheel weight or calcium chloride may be added to the left rear wheel at the dealer/customer's expense.

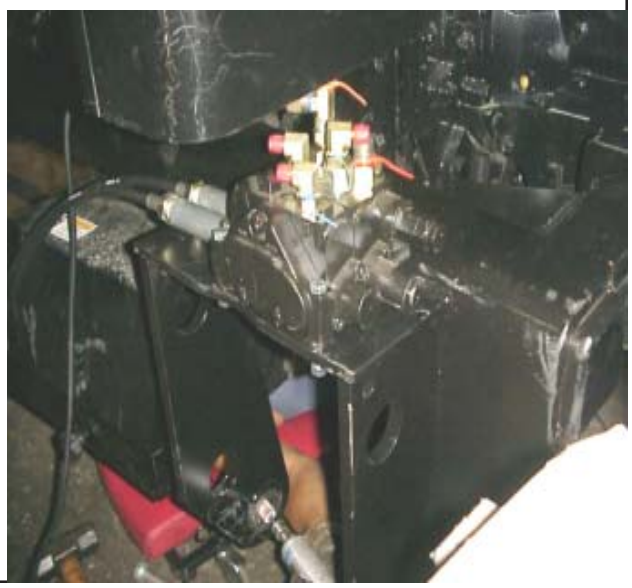
3. This mount kit includes the Neapco style driveline with double U-joints.

4. Adjustment of the steering stop may be necessary on 4wd models.

First Cut From Tractor Centerline:

Rotary: ~72-1/2"
Flail: ~79-1/2"

Mounting Specifications



Mounting Kit - Bill of Material

Caterpillar Challenger MT465B Cab/4wd

IMPORTANT NOTICE: The following Part / Assembly Numbers are for reference and should not be ordered as replacement parts, unless all the components in that assembly are wanted. These will break down to bills of material of the components. Some of numbers listed are NOT individual Parts but complete assemblies and/or box of assemblies. Check before ordering.

02983164 Brahma Mount Kit - Caterpillar Challenger MT465B Cab/4wd

Consist of the Following Items

Item	Part No.	Qty	Description
1	02753400	3	PLASTIC TIE, 15” LG
2	02775500	10	PLASTIC TIE, 21” LG.
3	02960004	1	HOSE, #8 - 8FJX - 8FJX90 - 92” LG
4	02966874	1	BOOT, CABLE
5	02966873	1	DRAWING INSTRUCTION, BOOT
6	02969130	2	CABLE REMOTE CONTROL 72" LG
7	02969813	1	HOSE, #16,-16FJX - 16FJX - 108LG
8	02969814	1	HOSE, #16,-16FJX - 16FJX - 108LG
9	02969815	1	HOSE, #16,-16FJX - 16FJX - 108LG
10	02969850	1	CORDURA SLEEVING 100
11	02975257A	1	DRIVELINE ASY, 1” X15 SPLINE
12	02959770	2	HOSE SUPPORT RING
13	02983114	1	MAINFRAME WELDMENT BRAHMA
14	02983115	1	SUPPORT MOUNT, LH
15	02983116	1	TANK RAIL WELDMENT, LH
16	02983118	1	TANK RAIL WELDMENT, RH
17	02983119	1	BATTERY MOUNT BRACKET
18	02961853	1	HOSE, #8 - 8FJX - 8FJX90 - 84” LG
19	02972267	1	HOSE, #8 - 8FJX - 8FJX90 -112” LG
20	02975061	1	END CAP, POWER BEYOND
21	02161300	1	ADAPTER, HYD ELBOW 8MJ - 10MB90
22	00724357	2	HYDRAULIC FITTING, 12MB PLUG
23	02761100	2	ADAPTER, HYD 8MJ - 8FJX90
24	02961851	2	ADAPTER, HYD STRAIGHT 8MJ - 10FJ
25	0692300	1	ADAPTER, HYD 8MJ - 22MM W/SEAL
26	02982176	1	CONTROL STAND WELDMENT
27	02983165	1	BOLT BAG, CAT MT465B C/4 BRAHMA
28	02977074	1	PUMP MOUNT PLATE, MACHINED
29	02979238	1	SPACER PLATE, MACHINED
30	02982085	4	SPACER, PUMP PLATE
31	02983272	1	ASSEMBLY MANUAL CAT MT465B

Mounting Kit - Bill of Material

02983165 Bolt Bag - Caterpillar Challenger MT465B Cab/4wd
Consist of the Following Items

Item	Part No.	Qty	Description
1	00015800	9	LOCKNUT, TOPLOCK 3/8”
2	00022200	8	LOCKWASHER, 7/16” PL
3	02892000	2	BOLT, HEX HEAD 1/2"-13NC X 1-1/2" PL GR8
4	02971158	20	LOCKWASHER, 20MM
5	02976344	4	BOLT, HEX HEAD 7/16”-NC X 1-1/4” PL GR8
6	02975738	8	BOLT, HEX HEAD M20-P2.5 X 70MM PL GR10.9
7	02976113	4	BOLT, HEX HEAD M20-P2.5 X 80MM PL GR10.9
8	00759635	2	FLATWASHER, 1/2” HARDENED NON-PLTD
9	5312316	16	WASHER, 3/4" HARDENED
10	02970595	2	BOLT, HEX HEAD 3/8”-NC X 2-3/4” PL GR8
11	02957042	1	BOLT, HEX HEAD 3/8”-NC X 1-3/4” PL GR8
12	00001300	2	LOCKWASHER, 1/2”
13	02975781	4	BOLT, HEX HEAD 7/16”-NF X 1-3/4” PL GR8
14	002528	4	BOLT, HEX HEAD M20-P2.5 X 110MM PL GR10.9
15	00753642	2	BOLT, HEX HEAD 3/8”-NC X 1-1/4” PL GR5
16	00013900	4	BOLT, HEX HEAD 3/8”-NC X 2-1/2” PL GR5
17	00011100	4	FLATWASHER, 3/8” STD
18	02975669	4	BOLT, HEX HEAD M20-P2.5 X 60MM PL GR10.9

Bolt Bag Asy P/N 02983165 is included in Mount Kit P/N 02983134

Common Box - Component List - Aux. Hyd. Valve

IMPORTANT NOTICE; These are parts that are used as Base Unit with each unit that will use Auxillary Cylinder Control Valve. These parts will remain the same no matter which model tractor or head is used. DO NOT ORDER any of these parts unless you are certain that that is what you want, most of theses are complete assemblies and may contain more prts than are wanted to perform repairs. If ordering parts that are listed here it is recommended that you look up the parts in a regular parts manual under the specific assembly number.

04001000 Base Unit Consist of the Following Items:

04001000 is NOT a Replacement Part Number, listed here as a reference only !

Used on Caterpillar Challenger MT465B Cab/4wd w/Aux Valve.

ITEM	PART NO.	QTY.	DESCRITION
	04001000	--	BRAHMA SIDE MOWER BASE UNIT (ITEMS 1 THRU 3)
1.	02969093	1	COMMON BOX, BRAHMA
2.	02979630	1	UNDERBEAM ASY, BRAHMA
3.	02979631	1	MOUNTING ARM, BRAHMA

Base Unit Includes Valve & Joystick for Hydraulic Cylinder Control

02969093 Common box Consist of the Following Items:

ITEM	PART NO.	QTY.	DESCRITION
1	00001300	2	LOCKWASHER, 1/2”
2	00001800	8	LOCKNUT, TOPLOCK, 1/2”-NC PLB
3	00002700	8	FLATWASHER, 1/2” PL STD
4	00015800	3	LOCKNUT, TOPLOCK, 3/8”
5	00023500	6	FLATWASHER, 5/16” PL
6	002369	1	DECAL, DANGER MULTI-HAZARD
7	00725336	2	STRAP
8	00725337	2	PIN
9	00725746	1	DECAL, PELIGRO
10	00726119	2	WASHER, BRASS SPECIAL F/ HINGE
11	00748823	2	BOLT, HEX HEAD 1/2”-13UNC X 1-1/2” PL GR5
12	00750940	3	LOCKNUT, TOPLOCK 5/16”-NC PLB
13	02027400	6	BOLT, HEX HEAD 1/2”-NC X 2-1/4” PL GR5
14	02733700	3	BOLT, HEX HEAD 5/16”-NC X 4-1/2” PL GR5
15	02776600	2	BOLT, HEX HEAD 1/2”-13NC X 1-1/4" PL GR8
16	02959010	1	PAMPHLET, SAFETY MOUNTING
17	02964028	1	SWITCH, PUSH-PULL SPDT 10A@12V
18	02965093	1	DECAL, PROPER ENGINE OPERATING
19	02965262	1	DECAL, WARNING HOSE BURST

(Continued Next Page)

Common Box - Component List - Aux. Hyd. Valve

02969093 Common box Consist of the Following Items:

(Continued From Previous Page)

ITEM	PART NO.	QTY.	DESCRITION
20	02966634	1	BUMPER WELDMENT
21	02967827	1	DECAL, MULTI HAZ
22	02981212	1	OIL TANK & PUMP ASY
23	02968822A	1	ASY, BRAHMA OPERATORS & PARTS
24	02968822CA	1	ASY, BRAHMA CANISTER MANUAL
25	02969128	1	JOYSTICK, DUAL AXIS REMOTE CONTROL
26	02969129	2	KIT, CABLE CONNECTION F/ VALVE
27	02969613	1	VALVE ASY, CONTROL
28	02969646	1	DECAL, NAME -BRAHMA 20(YELLOW)
29	02970202	1	DECAL, INST-JOYSTICK & PUMP
30	02970204	1	WIRE HARNESS, PUMP CONTROL
31	02971123	1	DECAL, WARNING PRESSURIZED TANK
32	02971191	1	WELDMENT, SWITCH MOUNT
33	02978099	1	TANK COVER ASY
34	00059900	2	BOLT, HEX HEAD 3/8”-NC X 3” PL GR5
35	00010600	1	BOLT, HEX HEAD 3/8”-NC X 2 “ PL GR5
36	02958206	1	QUICK-SPLICE, 18-14 TO 18-14GA
37	02958488	2	COTTER PIN, 1/16” X 1/2”
38	02982828	1	DECAL, OIL HYD TEMP RANGE

Common Box P/N 02969093 is included in Base Unit P/N 04001000

Common Box - Component List - Tractor Hyd. Valve

IMPORTANT NOTICE; These are parts that are used as Base Unit with each unit that will use tractor hydraulics for Cylinder Control Valve. These parts will remain the same no matter which model tractor or head is used. DO NOT ORDER any of these parts unless you are certain that that is what you want, most of theses are complete assemblies and may contain more prts than are wanted to perform repairs. If ordering parts that are listed here it is recommended that you look up the parts in a regular parts manual under the specific assembly number.

04101000 Base Unit Consist of the Following Items:

04101000 is NOT a Replacement Part Number, listed here as a reference only !

Used on Caterpillar Challenger MT465B Cab/4wd

Base Unit when Tractor Hydraulic used for Hydraulic Cylinder Control.

ITEM	PART NO.	QTY.	DESCRITION
	04101000	--	BRAHMA SIDE MOWER BASE UNIT (ITEMS 1 THRU 3)
1.	02982163	1	COMMON BOX, BRAHMA
2.	02979630	1	UNDERBEAM ASY, BRAHMA
3.	02979631	1	MOUNTING ARM, BRAHMA

Base Unit WILL NOT Include Valve or Joystick for Hydraulic Cylinder Control. Use Tractor Huydraulic controls.

02982163 Common box Consist of the Following Items:

ITEM	PART NO.	QTY.	DESCRITION
1	00001300	2	LOCKWASHER, 1/2”
2	00001800	8	LOCKNUT, TOPLOCK, 1/2”-NC PLB
3	00002700	8	FLATWASHER, 1/2” PL STD
4	002369	1	DECAL, DANGER MULTI-HAZARD
5	00725336	2	STRAP
6	00725337	2	PIN
7	00725746	1	DECAL, PELIGRO
8	00726119	2	WASHER, BRASS SPECIAL F/ HINGE
9	00748823	2	BOLT, HEX HEAD 1/2”-13UNC X 1-1/2” PL GR5
10	02027400	6	BOLT, HEX HEAD 1/2”-NC X 2-1/4” PL GR5
11	02776600	2	BOLT, HEX HEAD 1/2”-13NC X 1-1/4" PL GR8
12	02959010	1	PAMPHLET, SAFETY MOUNTING
13	02964028	1	SWITCH, PUSH-PULL SPDT 10A@12V
14	02965093	1	DECAL, PROPER ENGINE OPERATING
15	02965262	1	DECAL, WARNING HOSE BURST
16	02966634	1	BUMPER WELDMENT

(Continued Next Page)

Common Box - Component List - Tractor Hyd. Valve

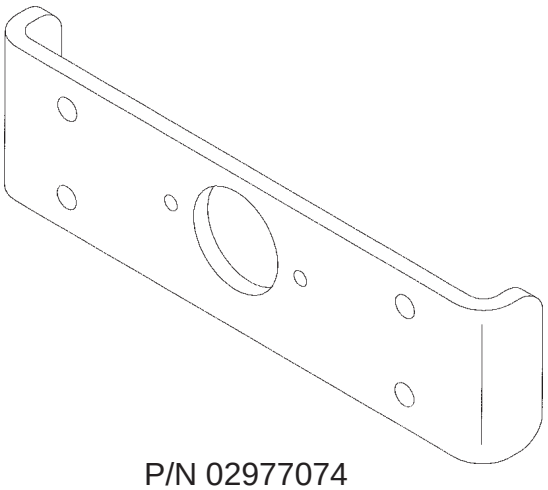
02982163 Common box Consist of the Following Items:

(Continued From Previous Page)

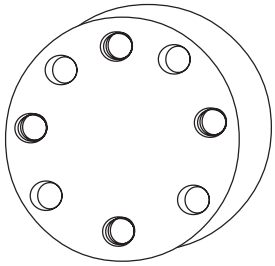
ITEM	PART NO.	QTY.	DESCRITION
17	02967827	1	DECAL, MULTI HAZ
18	02968822A	1	ASY, BRAHMA OPERATORS & PARTS
19	02968822CA	1	ASY, BRAHMA CANISTER MANUAL
20	02969646	1	DECAL, NAME -BRAHMA 20(YELLOW)
21	02970204	1	WIRE HARNESS, PUMP CONTROL
22	02971123	1	DECAL, WARNING PRESSURIZED TANK
23	02978099	1	TANK COVER ASY
24	02958206	1	QUICK-SPLICE, 18-14 TO 18-14GA
25	02958488	2	COTTER PIN, 1/16” X 1/2”
26	02981212	1	OIL TANK & PUMP ASY
27	02982828	1	DECAL, OIL HYD TEMP RANGE

Common Box P/N 02982163 is included in Base Unit P/N 04101000

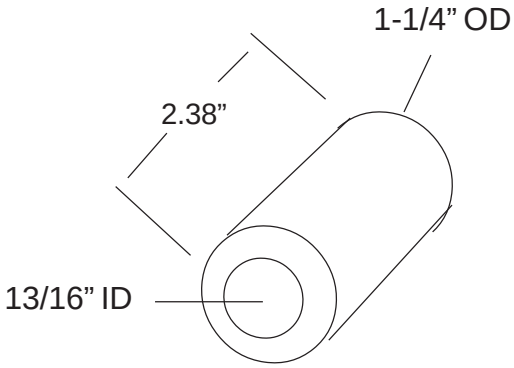
Mount Kit - Component ID



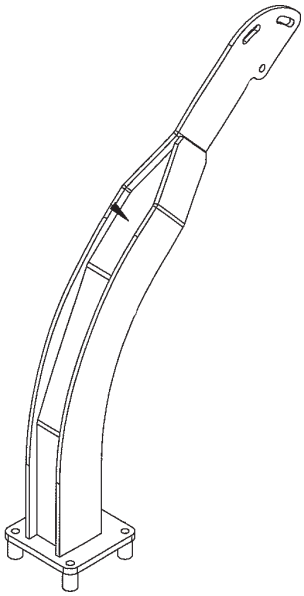
P/N 02977074
Pump Mount Plate, Machined



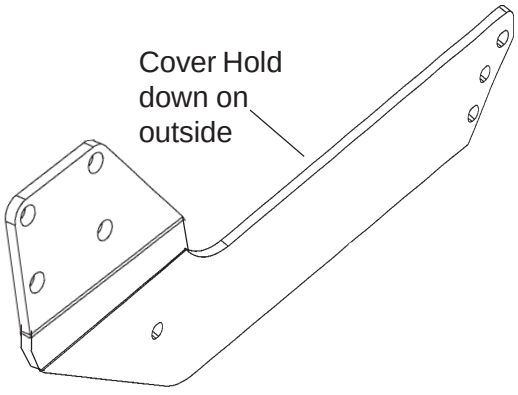
P/N 02979238
Pulley Adapter/ Spacer
(has 4 thread holes & 4
non-threaded holes)



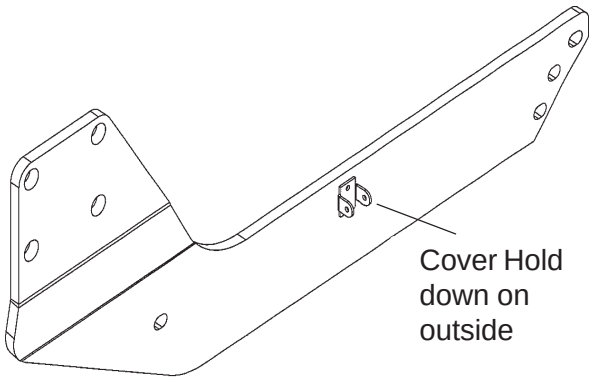
P/N 02982085
Pump Plate Spacer



P/N 02982176
Control Stand Weldment

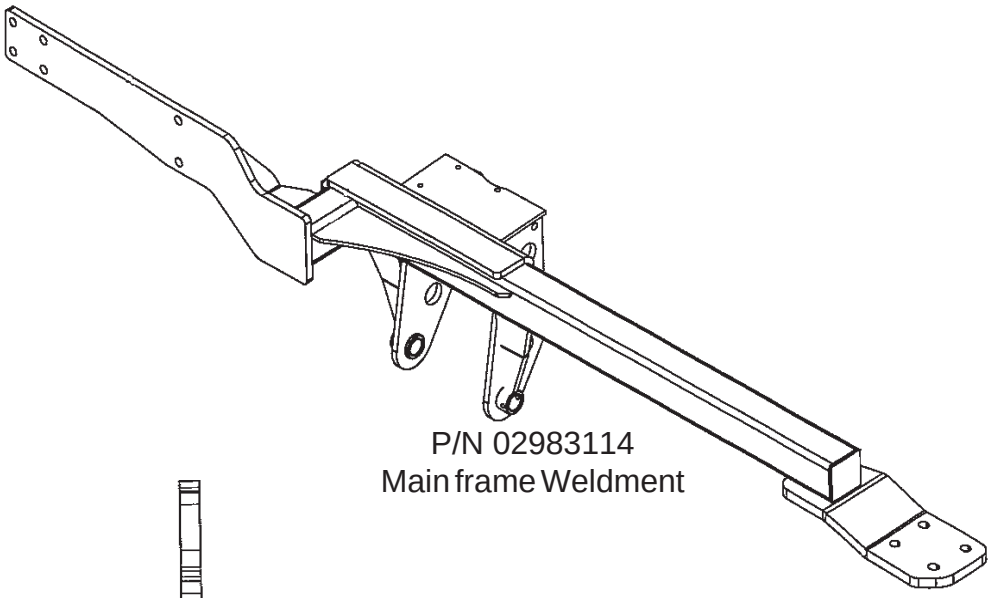


P/N 02983116
Tamk Rail Mount LH

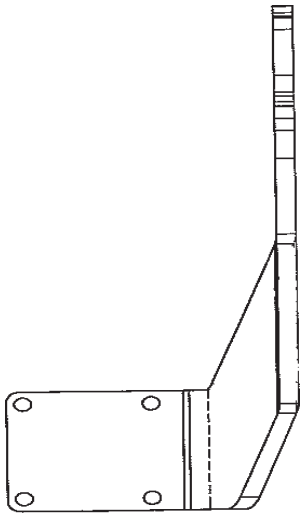


P/N 02983118
Tamk Rail Mount RH

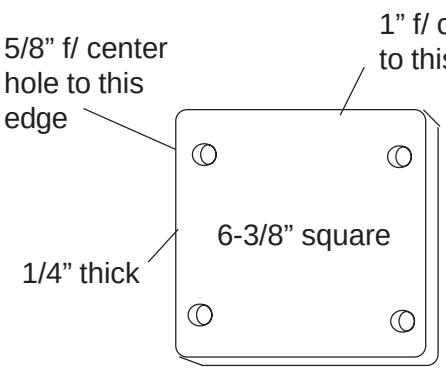
Mount Kit - Component ID



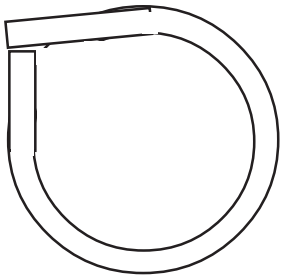
P/N 02983114
Main frame Weldment



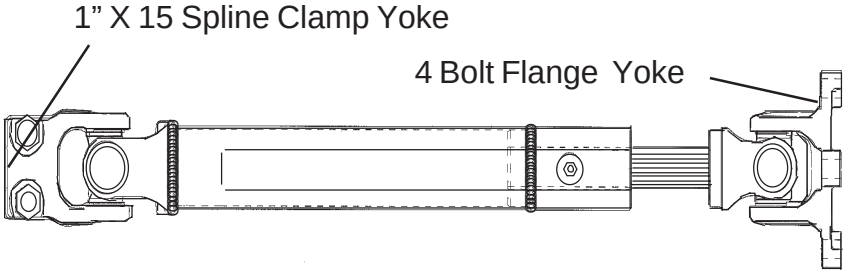
P/N 02983115
Support Weldment



P/N 02983119
Battery Mount Bracket



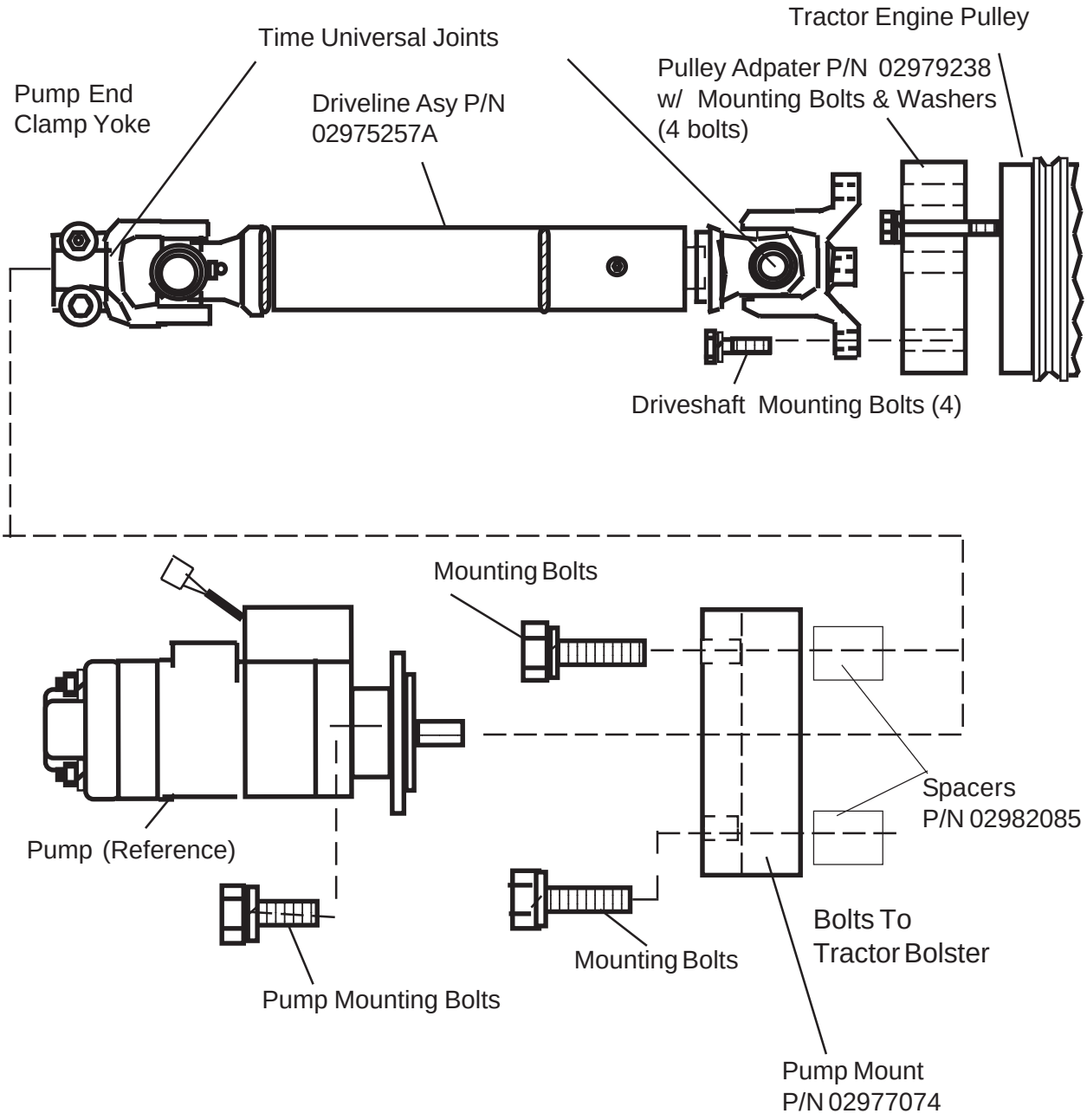
P/N 02979770
Hose Support Ring
(Weld On)



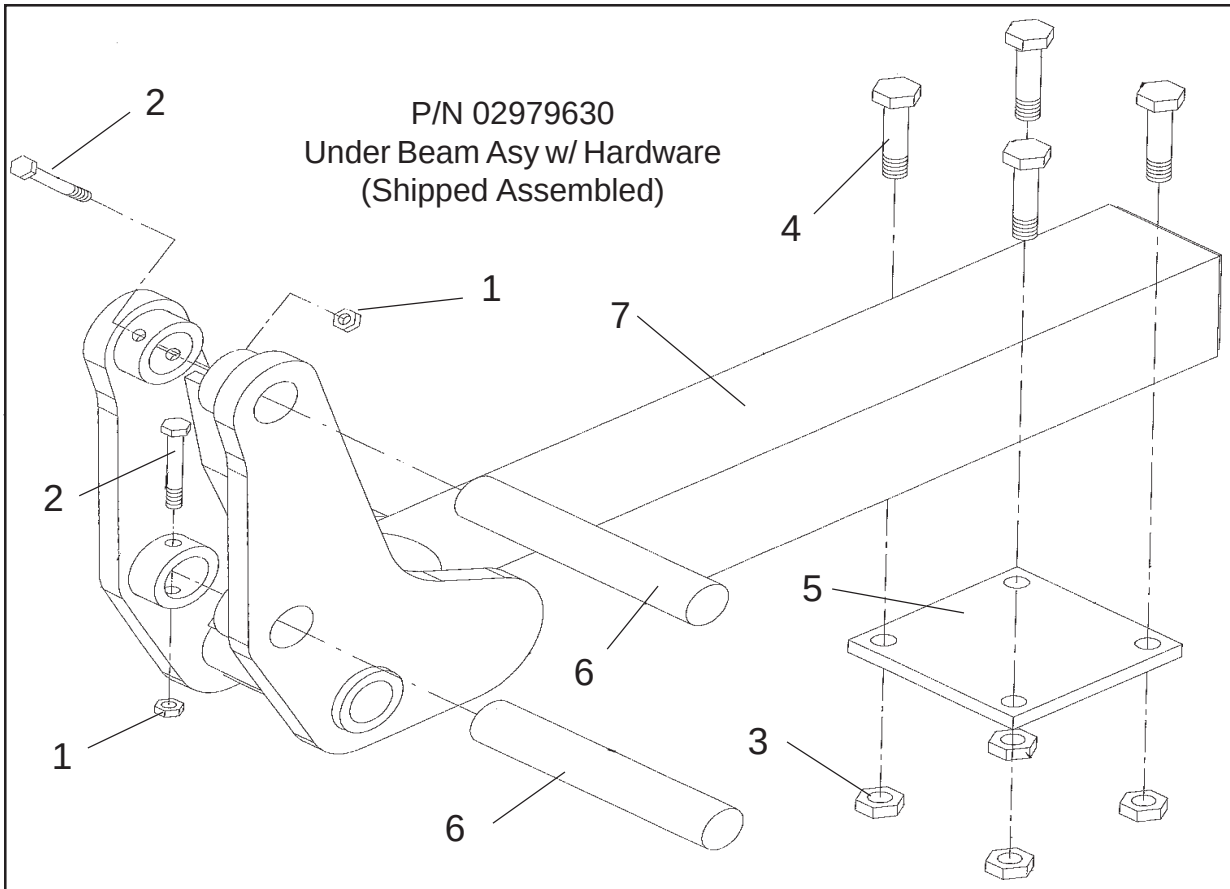
P/N 02975257A
Driveshaft Asy.
(Inner & Outer Half W/Yokes)

Mount Kit - Component ID

Pump & Driveshaft Components



Base Unit - Component ID

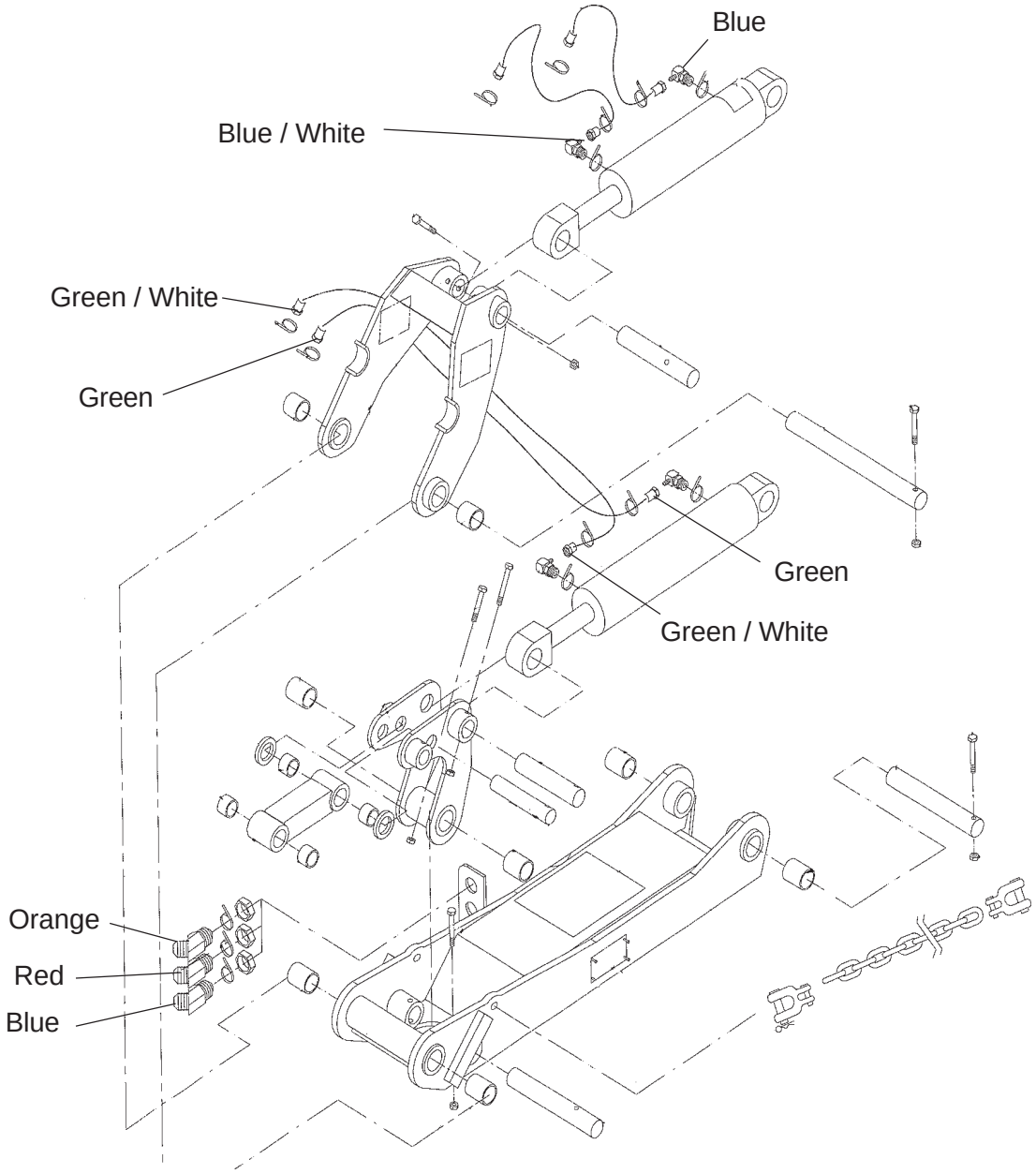


Item	Part No	Qty	Description
	02979630	**--**	**Under Beam Asy. (Item 1 thru 7)**
1	00015800	2	Locknut, Toplock 3/8”-NC PLC
2	00059900	2	Bolt, Hex head 3/8”-NC X 3” PL
3	00695100	4	Locknut, Toplock 5/8”-NC PLB
4	00059100	4	Bolt, Hex Head 5/8”-NC X 6 PL
5	02967987	1	Clamp Plate
6	02979629	2	Pin, Cylinder Base
7	02979613	1	Under Beam, Machined

Asy P/N 02979630
Under Beam Asy w/ Harware

Under Beam assembly will be shipped with pins, bolts, nuts and clamp plate. Under beam assembly is shipped as part of the base unit.

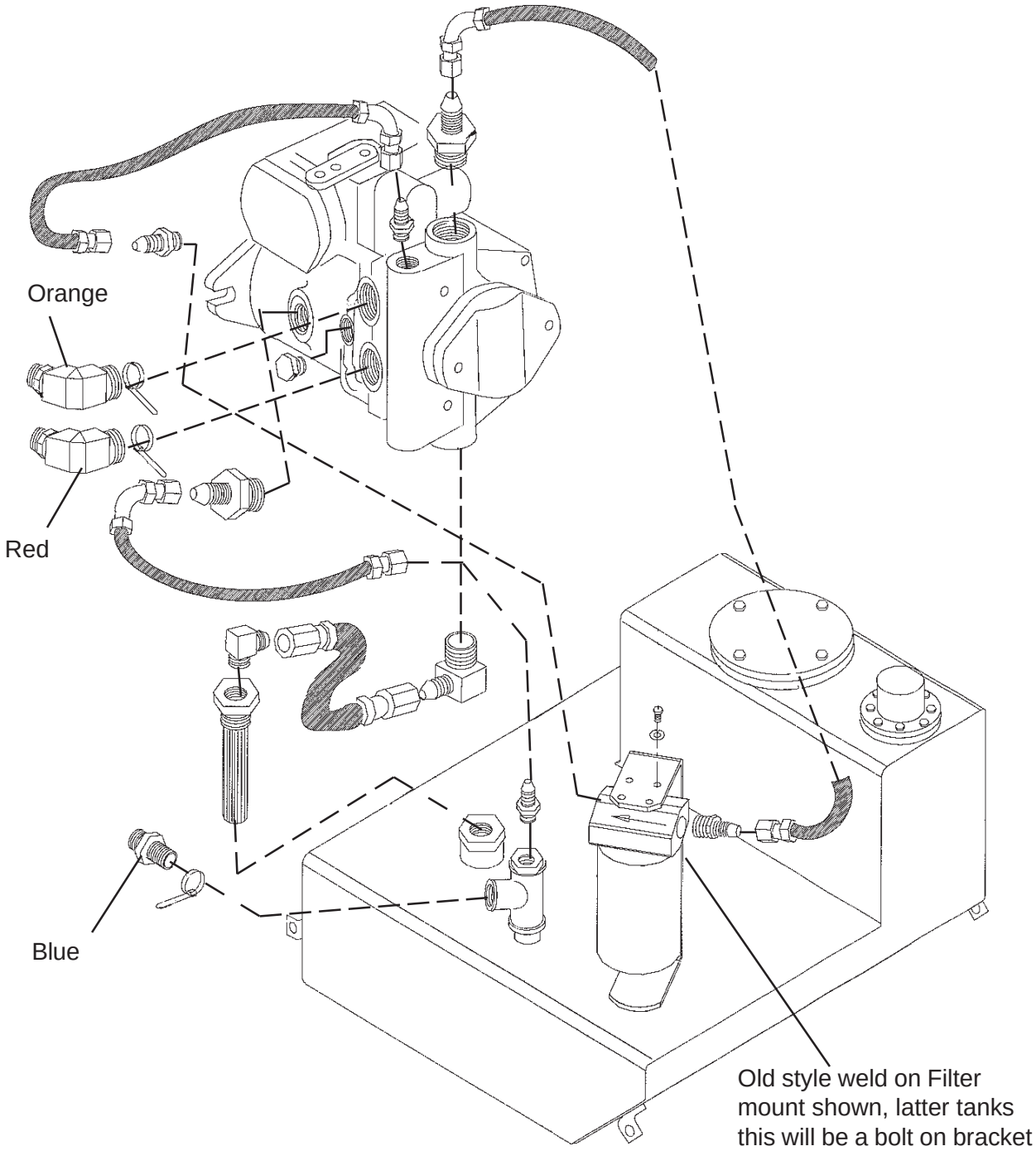
Base Unit - Component ID



Asy P/N 02979631
Mounting Arm Assembly

This is shipped assembled with the above shown components. For parts number and parts description for the components in this assembly see the Brahma Parts Manual. The Hydraulic Hoses have Color Coded Plastic ties on them, these must be connected to matching location for the proper functions to operate as designed. Some ties have solid colors and some have white stripes on them.

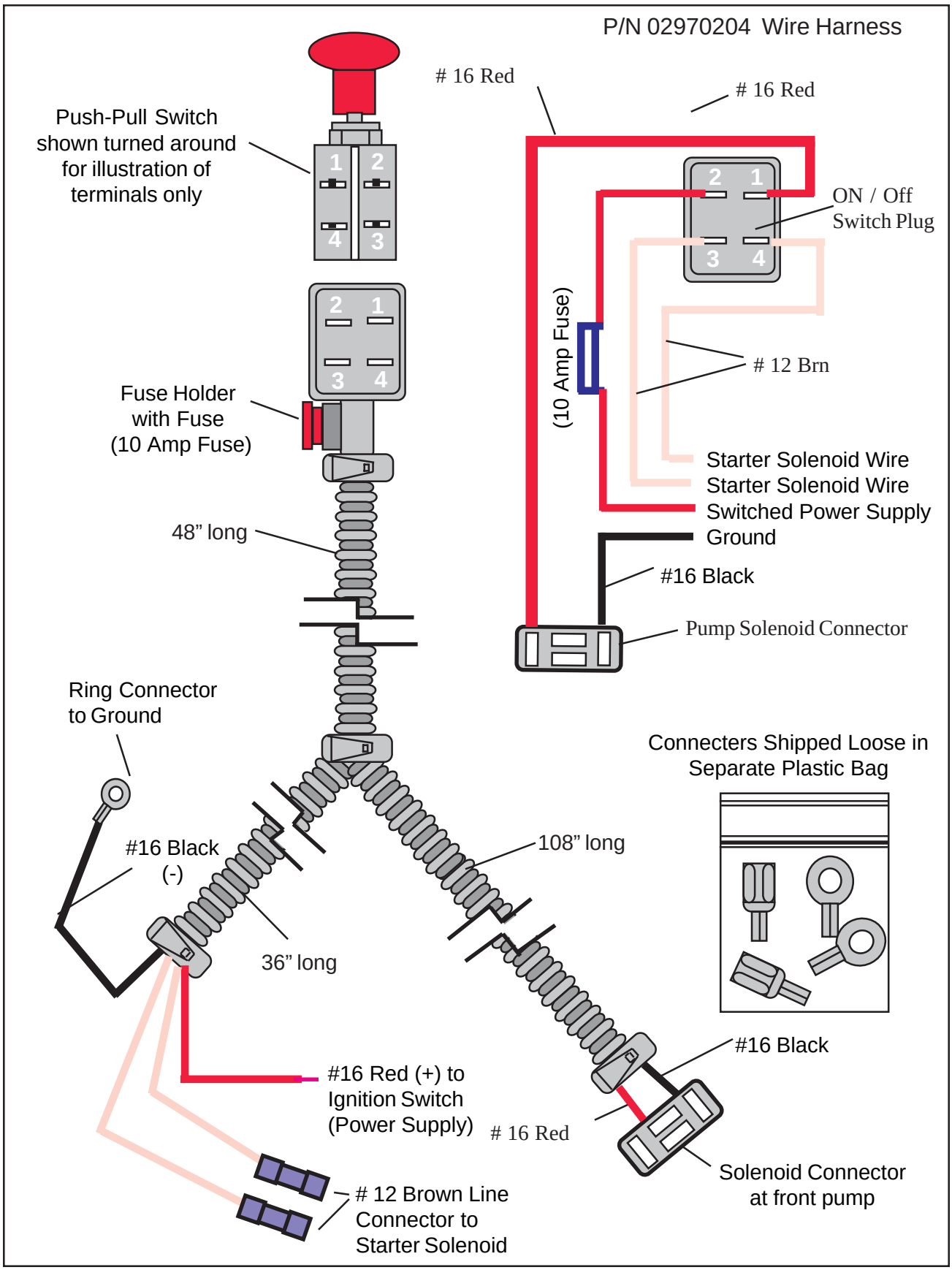
Base Unit - Component ID



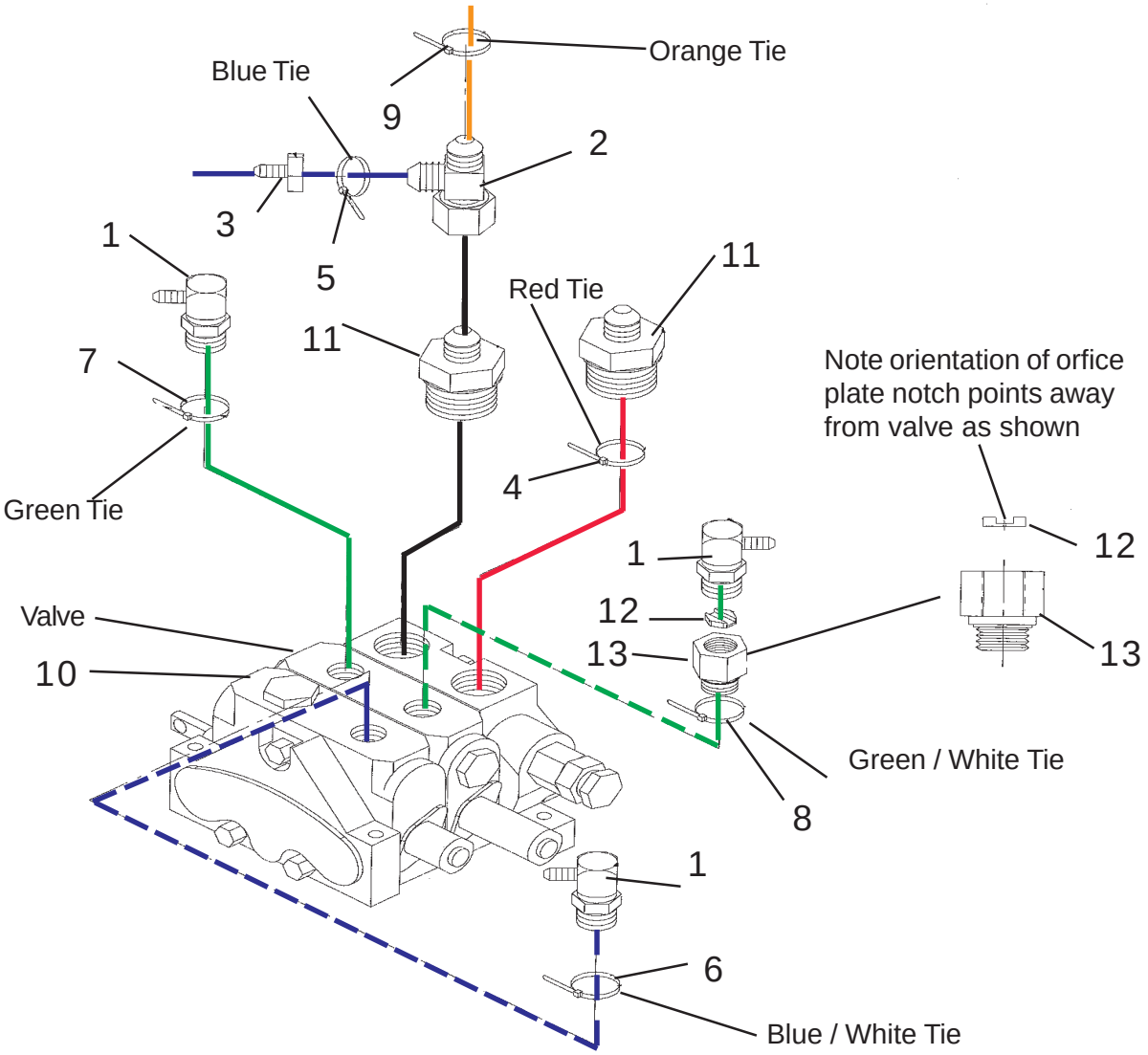
Asy P/N 02981212
Tank & Pump Asy

This is shipped assembled with the above shown components. For parts number and parts description for the components in this assembly see the Brahma Parts Manual. The Hydraulic Hoses have Color Coded Plastic ties on them, these must be connected to matching location for the proper functions to operate as designed. Some ties have solid colors and some have white stripes on them.

Base Unit - Component ID

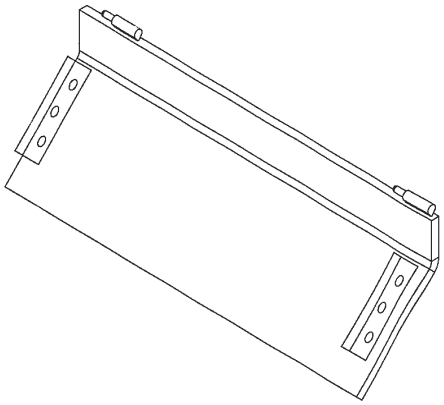


Base Unit - Component ID

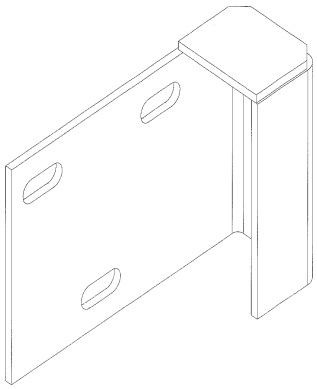


Item	Part No	Qty	Description
	02969613	**--**	**Valve Asy, (1 thru 13)**
1	02963349	3	Adapter, Hyd Elbow 8MJ - 4MJ
2	02967150	1	Adapter, Hyd Tee 8MJ - 8MJ - 8FJX
3	02967151	1	Adapter, Hyd Straight 8FJ - 4 MJ
4	02968828	1	Plastic Tie, 4” LG Red
5	02968830	1	Plastic Tie, 4” LG Blue
6	02968831	1	Plastic Tie, 4” LG Blue & White
7	02968832	1	Plastic Tie, 4” LG Green
8	02968833	1	Plastic Tie, 4” LG Green & White
9	02968834	1	Plastic Tie, 4” LG Orange
10	02969131	1	Valve Only
11	63042700	2	Adapter, Hyd. Straight 12MB - 8MJ
12	02969399	1	Orfice, One Way Restrictor
13	02972159	1	Adapter, Hyd Elbow 8FB - 8MB

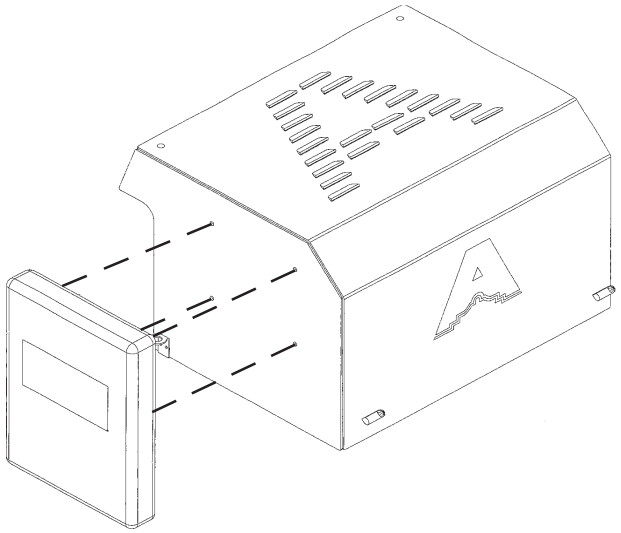
Base Unit - Component ID



P/N 02966634
Bumper Weldment



P/N 02971191
Switch Mount Weldment



P/N 02978099
Tank Cover & Manual
Cannister Asy.

Brahma Asy. Manual
Caterpillar Challenger
MT465B Cab / 4 wd
2005 Edition
P/N 02983272